The Impact of Societal Instability on Demographic Behavior
(USSR/Russia: A Case Study)

A Dissertation
SUBMITTED TO THE FACULTY OF THE
UNIVERSITY of MINNESOTA
BY

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IN PARTIAL FULCILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY in SOCIOLOGY

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December 2017

Acknowledgements

Great thanks to the scholars who tremendously helped me in doing this dissertation:

Former advisors-Professors R. Kennedy and the late D. Cooperman;

Current advisor Prof. J. Broadbent for his guidance and outstanding contribution to the development of political and sociopolitical theoretical foundations of the work;

Former co-advisor Prof. Ian R. Macmillan for contributing to the statistical part of the work and advising to use uncertainty reduction theory for explaining the sociopolitical instabilities' impact on fertility;

Former Committee member Prof. R Leik for encouraging pursuing this important topic;

Current Committee member Prof. D. Levison who helped me from the very start of my work - for providing valuable advice on the demographic part and contributing to the overall culture and logistics of doing research;

Special thanks to Committee members who joined at the later stage, Professors A. Meier and J. Savelsberg – for valuable contributions to the logic, structure and explanation of statistical methods.

Dedication

This dissertation is dedicated to my beloved mother, Irene Meter

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Introduction

1.1. Statement of Problem

The impact of societal instability on fertility remains one of the least understood issues in population studies. There are three major types of societal instabilities. First, the instability resulting from natural and man-made disasters like famines, earthquakes, wars, floods and terrorist attacks. The second type of instability is related mostly to economic problems, particularly unstable unemployment and other types of market insecurities such as term-limited working contracts. Finally, the third type of societal instability, of concern in this thesis, is the sociopolitical one. The latter is conceptualized as the wide range of types of domestic unrest in civil and political society: on one end of the spectrum there are mild dislocations and internal strife that do not require police action, and, on the other end, such highly disruptive events as strikes, civil disobedience, riots, coups, power struggles and the like (Sofranko and Bealer, 1972). Another conceptualization of sociopolitical instability, proposed by Alesina and Perotti (1993), emphasizes, at the one extreme, an executive instability that is the "propensity to observe governmental changes," constitutional and, especially, non-constitutional ones (like the coup d'état) that are typical for authoritarian and totalitarian regimes. At the other extreme, scholars place social unrest and broad political violence. Although these types of societal instability are related with each other and even could partially overlap, there is still a distinctive conceptualization of each based on the predominant component in any given kind of instability.

Previous works addressing the impact of instability in political society on fertility are relatively rare. The majority of works have focused either on the impact on fertility caused by instability resulting from natural or man-made disasters, including wars and famines (Palloni, 1990; Palloni, 2006), or by economic instability, particularly unstable employment and other types of market insecurities such as term-limited working

contracts (Kreyenfeld, 2010; Perelli-Harris, 2008). In contrast, the impact of sociopolitical instabilities, especially its milder variants caused by the cycles of empowered political elites in authoritarian states, or the effect of sociopolitical instability in civil society (not directly or fully related to economic uncertainty) on fertility has received little attention. In the current dissertation research I attempt to fill this gap by studying the impact on fertility of relatively moderate sociopolitical instabilities related to the cycling of the ruling elite in the Union of the Soviet Socialist Republics (USSR) (Roeder 1993) and the erosion and deterioration of the social contract in the same country (Cook 1994).

Russia and the former USSR provide a unique opportunity to study the relationship between sociopolitical instability and fertility rates. The USSR and its successor, Russia, had both minor political instabilities and major ones, including, in case of the former, the breakdown of the state and a social system collapse. Some periods were typified by only one type of instability, while other periods had several. The variety of types of instability in the country's recent history allows for a thorough examination of their impact on fertility. (Further in the dissertation I provide a list of the sociopolitical instability types along with their definition (p. 50). The period of research interest, from 1959 to 1998, was marked with several variants of sociopolitical instabilities that are broken down and ranked in intensity and strength. Various types of instabilities' impact on fertility (which underwent extreme variations, from sudden increase in fertility in the mid -1980s to steep decline in the late 1980s and early 1990s), are examined.

Sociopolitical instabilities of various types usually cause short-term fluctuations of fertility. Though rarely defined precisely, short-term fluctuations in fertility are referred to as ones with periods lasting up to two decades (Ben-Porath 1973; Hammel 1985; Adsera and Menendez, 2009). Despite the short duration of such fluctuations, they are consequential for many reasons. First, they can have a huge impact on the social and economic dimensions of society, and in particular on education, labor market and social security. Second, short-term fertility fluctuations' impact is not limited to the timing of

the fluctuations themselves: short-term fluctuations in fertility create an "echo effect' that affects society for long periods, often several generations. The "echo-effect" is a demographic phenomenon of the long-term and has repetitive consequences of fertility rates for the future sex and age structure of population and, in turn, its further impact on fertility rates. Third, short-term fluctuations in fertility often create new social and economic environments for the corresponding generations that lead to new demographic patterns, social strategies and specific lifestyles. (For example, the Baby Boom generation in the U.S.). These, in turn, heavily impact the social, cultural and political elements of society. A more detailed analysis of short-term fluctuations in fertility of various origins is provided in the corresponding section (pp. 52 - 63).

1.2. Research Objectives and Questions

The first objective of this project is to investigate the extent and direction of fertility change caused by different types of sociopolitical instability in Soviet and post-Soviet Russia. Specifically, this research identifies time periods characterized by stability and those characterized by various types of sociopolitical instability, and examine their impact on fertility rates.

The second objective of this research project is to propose a mechanism explaining how various types of macro-level sociopolitical instabilities influence micro-level decision-making on fertility that, in turn, leads to a corresponding outcome. A model allowing for testing hypotheses linking macro-level instability and crisis with micro-level (or individual) fertility decision-making is proposed.

In doing so, two fundamental questions are addressed:

1. Are fertility rates affected by sociopolitical instability?

2. Are fertility rates affected differently, both in magnitude and direction, by various types of sociopolitical instability?

1.3. Limitations of Previous Studies

Previous works addressing short-term fertility change, including studies of societal instability, are relatively rare. As mentioned before, the majority of the existing studies have focused on either the impact of instability resulting from natural disasters, wars and famines (Palloni, 1990; Palloni, 2006), or on the effect of economic instability, particularly unstable employment and other types of market insecurities such as term-limited working contracts (Kreyenfeld, 2010; Perelli-Harris, 2008). The impact of sociopolitical instabilities, especially relatively moderate ones such as cycles of empowered political elites or the deterioration of social contract on fertility has received little attention.

In addition, existing demographic theories fall short of bridging macro-micro links. Traditional demographic theories emphasize the macro level and generally fail to represent human agency (Davis, 1986; Caldwell, 1978; Knodel & Van De Walle, 1979; Lesthaeghe, 1977; Watkins, 1986; Hammel, 1990; McNicoll, 1994). Other theories, such as the microeconomic, present a model of decision-making at the household (micro) level but reduce the macro level to the changing constraints and opportunities that influence this decision-making equation (Becker 1991; Becker and Lewis, 1973; Becker and Tomes, 1976). This theory also considers decision-making in a state of equilibrium. Thus, the model is not applicable in times of rapid and unexpected change.

To address these theoretical and empirical limitations, this dissertation explores the impact of several types of sociopolitical instability on fertility rates utilizing a model that encompasses both micro- and macro levels. The proposed model links large-scale social and political conditions, individual perception of these situations as uncertainties, and individual decision-making on fertility and aggregate fertility behavior.

1.4. Theoretical Directions and Contributions

To understand sociopolitical instabilities in the recent history of the USSR/Russia (1959-1998), I draw upon two political theories. The first is *reciprocal accountability*, which is used to define cycles of instability of political leadership in the former USSR after 1953, the year when Soviet dictator Stalin has passed away and the new forms of relationship within the political elite were established (Roeder, 1993). Altogether, four consequential cycles are defined and ordered. These cycles are specified by time period. In reciprocal accountability theory, time periods are seen as varying on two planes of society: policy and civil. Instability in the first plane is characterized by inconsistency and the reversal of previously introduced policy reforms. Policy reforms refer to efforts to redistribute privileges and wealth by changing the policy outputs of government. This kind of instability is relatively moderate. Reciprocal accountability theory postulates that greater instability occurs within civil society. This kind of instability corresponds to cycles of leadership and coincides with the introduction and reversal of procedural and constitutional reforms. Procedural reforms are efforts to redistribute power and wealth by changing policy making procedures (transfers of decision making among previously existing organs (that are the Soviet/Russian governmental bodies) or changes in the configuration of formal organs themselves). Constitutional reform is a type of procedural reform in which the most fundamental rules of policymaking and accountability are changed. The bigger the scope of the proposed change, the greater is the instability. This instability is further exacerbated when there is inconsistency and reversal of implementation in the reforms. Thus, periods associated with implementation and reversal of procedural reforms have higher levels of instability than those associated with policy reforms. For the same reason, instability related to constitutional reforms is greater than the instability followed by procedural reforms.

Periods of instability can also be caused by longer-term changes in social institutions. Other political theory employed in the dissertation research, *social contract theory* (Cook, 1984), describes the core institutional setting that provides stability within a social system in the USSR. According to this theory, societal stability is based on an implicit agreement between the government and populace that dictates loyalty and compliance of the latter in exchange for the provision of a social contract package. In the USSR, this package included secure employment, delivery of free medical and social services, and stable wages and prices. The initial deterioration of the social contract and then its further erosion and failure have marked the corresponding periods with greater levels of instability in civil society. What is important is that though the social contract, according to the scholar, contains economic components, its major impact touches upon the social and political dimensions. Cook illustrates this point by demonstrating the increase of politically motivated strikes with the erosion and, especially, the deterioration of the social contract. The reason for the strikes is that people started to view the solution of the problem not in addressing local economic conditions but rather in changing the components of the social system and existing political regime.

To link instability to fertility rates, my research draws mostly from uncertainty reduction theory (Friedman, Hechter & Kanazawa, 1994) and to some extent from the theory of decision-making in a state of uncertainty (Arrow, 1983; Machina, 1987; Goszynska, 1991). These theories and methodological approaches emphasize individual perceptions of risk and uncertainty, and how they affect behavior in the corresponding situations that produce different outcomes.

This dissertation research advances demographic theory by explaining fertility behavior in particular conditions. It links macro-level sociopolitical instabilities of various kinds with individual decision-making on fertility based on the uncertainty reduction theory. The research could also be regarded as a test of uncertainty reduction theory that is applied here in new ways. This research also contributes to the interpretation of demographic history in the USSR/Russia. Methodologically, this

research incorporates political, sociological and demographic theories, employs statistical method, and applies demographic analysis to Soviet and Russian social history.

1.5. Hypotheses

As a basis for the first set of hypothesis for the research presented here, I use and reformulate core assumptions of uncertainty reduction theory (Friedman et. al, 1994, 375-400). Uncertainty reduction theory assumes the existence of both immanent and instrumental values. Reduction of uncertainty is considered to be a nonstandard *universal immanent value*. In opposite to the instrumental values that "…provide means to a wide variety of ends, immanent values are the ends that are desired purely for their own sake" (Friedman, 1994, 377). According to the theory, actors prefer decision-making under risk (where probabilities are known) to decision-making under uncertainty (where probabilities are unknown). Thus, actors try to reduce uncertainty by converting it instead to a situation under risk. Actors can do this in two ways. First, they can gather information that transforms uncertainty to risk. Second, they can adopt global strategies designed to reduce uncertainty about a set of future courses of action (Friedman et al., 1994, p. 382).

Proponents of uncertainty reduction theory (Friedman et. al, 1994, 375-400) have used this approach to explain fertility variation. According to this theory, having a child means reducing uncertainty because that means being embedded in the decades long interaction with a child and investment in his health, upbringing and education. In other words, the decision to have at least one child vs. having no children could stem during times of uncertainties from such sociopolitical instabilities that affect level of certainty/uncertainty of a spouse. Several assumptions and hypotheses have been derived from this perspective, including that the decision to have at least one child could function to reduce uncertainty related to constrained career opportunity and as a reaction to uncertainty related to duration of marriage.

The following assumptions may be extrapolated from uncertainty reduction theory to explain the effects of instability on short-term fluctuations in fertility:

(1) Sociopolitical instability at the macro-societal level translates into uncertainty at the micro-level of a fertility decision-maker (individual level or at the level of a family unit);

(2) The greater the extent of societal instability, the greater the level of associated uncertainty that micro-level decision-maker on fertility outcome (an individual or a family unit) would like to reduce.

(3) The greater the level of uncertainty at a micro level, the greater the number of births per individual or a family (according to the uncertainty reduction theory premise that fertility implies reducing uncertainty).

These assumptions further suggest the formulation of several general hypotheses:

H1. Periods of sociopolitical instability not coupled with economic instability and crisis are typified by increased fertility.

H2. The greater the extent of sociopolitical instability on a societal level, the greater the fertility rate for a given period (other factors controlled).

This basic hypothesis is further elaborated upon by taking into account specific scope and type of period-specific instabilities that allow for ranking by intensity and magnitude. It is tested in regard to each pair of the established hierarchy of instabilities in regard to their magnitude and intensity.

H3. Stable periods are typified by lower fertility rates than the ones marked by sociopolitical instabilities.

H4. Stable periods are typified by greater homogeneity (or less variance) of fertility rates than those marked by increasing levels of sociopolitical instability. (That is because during the unstable periods, marked with increased uncertainties, fertility should go up, according to the uncertainty reduction theory).

Finally, the last general hypothesis concerns periods that are marked by both sociopolitical and severe economic instabilities and crises.

H5. During periods characterized by both a profound economic and sociopolitical instability, fertility rates will be most affected by the former and, according to the premises of microeconomic theory, will go down. (The detailed argument for the formulation of this hypothesis is provided below (see pp. 111-114).

1.6. Data and Research Methods.

The data used in this research were obtained from Roskomstat (State Committee on Statistics), an official Russian governmental body. This organization also incorporates data from its predecessor in the Soviet Union, Tse Se U (Central Statistical Bureau). The data are based on censuses that took place in the years 1959, 1970, 1979, and 1989. The information about births is mainly derived from current registration in ZAGSes, the Register of the Acts of Marriages and Births. Thus, the role of censuses in obtaining fertility data is mostly indirect—for instance, they provide an age structure for calculation of the ratios in fertility tables. Also, retrospective data about number of children born are sometimes collected. Between the censuses, age structure is estimated on the basis of last census and the current registration of demographic events. Census data have been used in many Russian, European and American publications (e.g. Coale & Anderson, 1978).

The statistical methods used in this research project are variations on APC (age-period-cohort) models. With these models, it is possible to estimate the effects of periods with different levels and scopes of societal instability and crisis on fertility rates while controlling for age and cohort effects. Variations of this model were required because available data contained uneven period and age intervals: Fertility rates were available for every year in a period of research interest—1952-2000—but they were grouped in five-year age intervals (15-19, 20-24…45-49). There are three major variations of APC models: generalized linear model, intrinsic estimator and hierarchical models. I have chosen the first one since it is less flawed in the case of having strong theoretical assumptions for setting equality constraints. That means equating just two coefficients in

one of the three dimensions (age, cohort and period) basing it on the existing knowledge of informed assumptions.

1.7. Organization of Thesis

Chapter 1 introduces the overall project, describes the limitations of previous studies, formulates research questions and hypotheses, describes theoretical directions and contributions, and provides an outline of the structure of the dissertation.

Chapter 2 provides an overview of sociological approaches to the conceptualization of instability, analyzes political theories of instability, and creates a typology of societal instabilities. Based on this typology, the periodization of social history of USSR/Russia is established.

Chapter 3 addresses theoretical and methodological issues in identifying a mechanism that links societal instabilities and crisis to fertility decision-making and behavior. Specifically, demographic theories are analyzed to find ways to this mechanism. The rationale for using uncertainty reduction theory is provided. The model and procedure for an application to research questions based on that theory is worked out.

Chapter 4 describes data and methods used to test the hypotheses and outline the results of testing. The analytic method that is used in this research is a variation of an age-period-cohort (APC) model; the application of the model to the data is described and justified. The results of the analysis are presented.

Chapter 5 discusses the research results in relation to theoretical/empirical issues and articulates directions for future research.

Chapter Two

Instability of Institutional Structures and Society in the USSR/Russia: Conceptualizations, Theories and Periodization

This chapter describes the different kinds of sociopolitical instabilities as well as instabilities related to economic crises in the USSR/Russia from 1953 to 1998. This periodization is the foundation for examining the impact of different types of instability on fertility rates. First, I analyze the concept of instability in relation to different theories. Second, I define different periods in recent Russian history in terms of particular types and levels of instability.

2.1. Critical Overview of the Theories of Sociopolitical Instability

To develop an understanding of social and political instability, two theories of institutional and political order are examined. The first is the theory of reciprocal accountability and the second is social contract theory. By elaborating on the premises of these theories, a general analysis of the concepts and dimensions of instability is undertaken.

2.1.1. Instability as a Sociological Concept

To analyze the effects of instability on fertility, it is important to investigate the possibility of this concept's operationalization. Functionalist scholars (Alexander, 1982, vol. 1, 174) attempted to link instability with system equilibrium, including static and dynamic, moving and stationary kinds of this phenomenon.

"Moderate" or "mild" functionalism is used as a tool for conceptualizing sociopolitical instabilities by Sofranko and Bealer (1972). They view instabilities largely as growing imbalances between several segments of societies such as the economy, education, welfare and the political system. For instance, they cite the examples of some African countries that were not

able to match job opportunities within the continent with the growing number of highly educated professionals, usually attributable to improving quality of education and increase of educational settings in these countries.

Sonfranko and Bealer acknowledge the wide range of types of domestic instability and their relative seriousness. On one end of the spectrum are mild dislocations that do not require police action. On the other end, Sofranko and Bealer locate such events as strikes, civil disobedience, riots, coups, power struggles and the like. They also make a very important and promising attempt to conceptualize domestic instabilities. They offer a construction of an index of the level of domestic instability that allows for scaling. This level is based on intensity of the most unstable domestic event, number of domestic unstable events, and magnitude of civil violence.

Safranko and Bealer suggest that the first measure be constructed based on a seven-point rating system ranging from complete stability (0) to extreme instability (6). The countries are assigned to each of these categories based on the most unstable events recorded in a given period. For instance, in one such allocation, the following events were rated in terms of intensity of instability: 0 - general election held and without repercussion; 1 - resignation or dismissal of a cabinet official or dissolution of a legislature; 2 - peaceful demonstrations, strikes of article law; 3 - riots or assassination of political leaders, but not the head of state; 4 - large-scale arrests, plots or terrorism; 5 - revolts or coup d'état; and 6 - revolution or civil war (Sofranko and Bealer, 1972, 35). The second measure, the number of unstable events, is pretty straightforward. In the third measure, related to civil violence, the summary instability score is created from a set of five basic measures: 1 - number of participants; 2 - area encompassed by the most widespread strife; 3 - number of casualties; 4 - extent of property damage; and 5 - duration of civil violence.

A very useful conceptualization of instability is also proposed by Alesina and Perotti (1993). The authors introduce the concept of sociopolitical instability that could be viewed in two ways. The first one emphasizes executive instability. The second relates to social unrest and political violence. The first approach defines political instability as the "propensity to observe governmental changes." These changes could be either constitutional or non-constitutional. The

first ones take place within the law, and the second could mean having a coup d'état. Authors stress that a high propensity to executive changes is associated with policy uncertainty and, in some cases, with threats to property rights. Also, propensity for executive changes is distinct from the actual frequency of changes.

The second approach for measuring sociopolitical instability proposed by Alesina and Perotti is aimed at capturing phenomena related to social unrest. The index of sociopolitical instability includes the following variables: ASSASS, the number of politically motivated assassinations; DEATH, the number of people killed in conjunction with phenomena of domestic mass violence; SCOUP, the number of successful coups; UCOUP, the number of attempted but unsuccessful coups; DICT, a dummy variable that takes the value of zero in democracies; 0.5 in semi-democracies and 1 in dictatorships. In this model, democracy is defined as a country with free competitive elections, while semi-democracy is a country with some form of elections but with some severe restrictions on political rights; a dictatorship is a country without competitive elections.

One of the important implications of this approach is the inclusion and conceptualization of the milder forms of sociopolitical instabilities that could be limited to the power struggle in ruling elites. These kinds of instabilities could also create uncertainties and affect demographic behavior; however, they are rarely mentioned and researched. The examples of a few works explicating such kinds of relatively moderate types of instabilities are Roeder's (1993) work on power struggle in the USSR elite and Cook's (1994) on the deterioration of the social contract in the USSR. The concepts employed by these authors are elaborated upon in the following sections.

Based on these analyses, I argue that it is possible to operationalize different levels of instability and disequilibrium at the ratio level of quantification, providing a ranking of the instabilities of various degrees of magnitude and intensity. The above-mentioned unstable equilibrium, for instance, is definitely lower in the level of instability than the state of disequilibrium. Different types of change (evolutionary, discontinuous, etc.) create different levels of instability that can be ranked as well.

Also, instability can be ranked not only in scope but also in strength (intensity). Instability in civil society, for instance, will be ranked higher than instability in the power elite. By the same token, instability in the political system of an authoritarian state ranks higher than it would in industrial democracies, because the latter does not depend so much on the polity of a state. It is appropriate to mention here that, as many scholars point out, using the concept of equilibrium does not necessarily imply a functionalist logic and approach.

The typology of instability is important for locating periods of instability across the social history of the USSR/Russia in order to test the hypotheses regarding instability's impact on fertility rates. I will elaborate on the typology of instability in relation to different historical periods of the country of interest and apply it for testing hypotheses in subsequent sections.

2.1.2. Instability as viewed by reciprocal accountability theory

In this subsection I show the relevance of the reciprocal accountability theory based on new institutionalism. By elaborating on this theory, basic and structural models of "reciprocal accountability" and cycles of leadership are demonstrated.

The Theory of Reciprocal Accountability

The theory of reciprocal accountability is rooted in the premises of new institutionalism. It breaks with two dominating traditional views on policy-making: individual- and society-centered. Some branches of new institutionalism offer a state-centered theory. It views the polity as a largely autonomous system with its own internal interests and logic of development. It defines institutions as rules that prescribe behavioral roles (North 1990, 3; Keohane 1988, 383-94; Young 1986, 107). These rules encompass human behavior and social interactions. Individual choice can challenge a prevailing rule and thus change the expectations that define the institution. This new

institutionalism view of the interplay between elements of social interaction is essential for building a model of power relations.

The theoretical model of reciprocal accountability developed by Roeder provides an explanation of power relations in the authoritarian state, namely the USSR from the 1953 (the year of Stalin's death) and up to the moment of its breakdown. It allows for determination of periods of socio-political instability related to power imbalance and ranks them in scope and intensity. I will discuss that model using the formulation of the principles of new institutionalism that are the foundation of the reciprocal accountability theory. I will then turn to the basic elements of the model and follow up with an analysis of its structure and functioning. I will apply that model to real policymaking in the authoritarian state and will link cycling of reciprocal accountability with changes in levels of stability/instability.

The Basic Model of Reciprocal Accountability

A model of reciprocal accountability starts with the definition and recognition of the Bolsheviks' constitution. A constitution is defined as polity's most fundamental rules defining political roles and relationships, whether written or unwritten.

Roeder (1993) begins his analysis of the constitution of Bolshevism with a static relationship where the constitution shapes coalition processes and through these influences defines political outcomes. The constitution is linked to reform in a two-step relationship. The first step is the interaction between political actors that is guided and governed by constitutional rules and results in shaping coalitions. Because the latter consists of actors with certain preferences, these constituencies tend to favor some policy outcomes over others. That leads to the second step, coalition-building processes creating a chance for innovation (reform) because they could redistribute shares of certain political preferences. This, in turn, could change the distribution of policy benefits and costs (Brzezinski & Huntington, 1965, 191-232; Schilling, Hammond & Snyder, 1962).

The dynamic version of these relationships includes the possibility of changing rules in the course of political development. According to the principles of new institutionalism, political behavior also affects existing rules. However, there are limits in the range of these changes because of the constraints of basic constitutional rules. So, although certain changes are possible and even likely, the design of the constitution constrains its own development, creating the so-called path-dependent trajectory (North, 1990, 92-104).

The constitution of Bolshevism was founded on a conscious plan to deprive the vast majority of the adult population of political participation and to eliminate accountability of those exercising policymaking. The early decisions created a constitutional order of reciprocal accountability—not between a large unenfranchised populace and policymakers, but between policymakers and their bureaucratic constituencies, i.e., within the state structure. The constitution determined a reciprocal accountability in which policymakers needed the support of their bureaucratic constituencies, but bureaucrats in turn needed support from policymakers to remain in office.

The political game in the Soviet Union from 1953, the year of Stalin's death and the new arrangement of the power structure, to the breakdown of the state, revolved around the formation and change of coalitions between two tiers of political power: policymakers (first tier) and bureaucrats (second tier). From 1953 to 1985, the constitutional order was institutionalized. The first tier (Politburo) and second tier that represented bureaucratic constituencies (Central Committee) were reciprocally accountable to each other. However, they were involved in a tug of war to shift the balance of power. In the first tier, the struggle for leadership through coalition formation resulted in cycling between directive and collective leadership. However, with the advancement of institutionalization, the amplitude of alternated cycles of power shifts diminished, both for shifts between first and second tiers and within the first tier (i.e., between directive and collective leadership).

Institutionalization of the constitution thus established political equilibrium among empowered political actors. This equilibrium created a paradoxical effect: it contributed to the stability of the political system while at the same time creating vulnerability due to inability to adapt to social change. The more institutionalized the constitution became, the more stable the system became, with less likelihood that reforms would succeed. This notion is used later in the ranking of periods in regard to the degree of political instability. The latter is further tested for the impact on fertility: according to the uncertainty reduction theory explicated later, the more unstable the period is, the greater is fertility.

Structural Model of Reciprocal Accountability

The model of reciprocal accountability needs to be examined in a more detailed way. In a previous subsection, the relationship between constitutional structures of the authoritarian state and normal politics was sketched. Normal politics is the state in which political actors use existing rules to attain their goals. At a certain point, however, rules lose their efficiency and become an obstacle to the goals instead of means to their achievement. At this point, political actors turn to constitutional politics, in which they try to advance their causes by changing the rules themselves.

The shifts between directive (one-person) and collective or collegial (multiperson) rule in the first tier reflect the oldest distinction between assigning policymaking in the authoritarian state to a single individual, a small committee, or a large assembly. Examples of directive rule are assigning policymaking to a president or a general secretary. Examples of rule by committee are junta, revolutionary command council, or Politburo. There are basic differences between individual and collective political choices traced in game theory and collective action logic. The importance of the distinction between individual and collective decision-making is underscored by researchers (Olson, 1965, ch.1-2).

The body that holds the power to select and remove policymakers constitutes the selectorate, a term used by Roeder to specify the body of "voters' in the totalitarian and authoritarian societies. In democratic societies, the electorate encompasses the vast majority of the participant population (although a small chunk of it is unenfranchised and is not a part of the electorate; this group includes felons, resident aliens, the institutionalized and minors). In an authoritarian state, policymakers are accountable only to a small part of the entire potentially participant population. Using Dahl's term for the continuum of a selectorate, inclusiveness is significantly lower in an authoritarian state.

The new institutionalism suggests that accountability arises in the context of a delegated relationship, incorporating a principal-agent model. The policymakers (agents) are accountable to the selectorate (principal); agents are punished by cancellation of their principal relationship, or rewarded by a continuation of the relationship.

Roeder identifies three ideal types of policymakers' accountability: 1) leaders are despotic and so not accountable to others' control; 2) leaders are accountable to a restrictive group of social interests; or 3) leaders are accountable to a selectorate drawn from the governing apparatus itself. The example of the first type is hereditary monarchy; junta exemplifies the second type represented in authoritarianism; and democratic society is an example of selectorate accountability, according to the scholar.

Power relationships differ significantly between democratic and authoritarian societies. Democratic societies hold a pattern of hierarchical relationship characterized by unilateral delegation in which the rights of the agents are conditional but the rights of the principal are ultimate. Agents (policymakers) could be deprived of their rights by removal from their posts by the selectorate, but the principal (the selectorate) cannot be deprived of its rights by the agent. Reciprocal accountability in authoritarian societies assumes that selectors such as bureaucratic constituencies can be appointed and removed by the very leaders (policymakers) whom they themselves appoint and remove.

In both types of accountability, a role may be simultaneously a principal and an agent. However, within the hierarchy a principal is an agent of a higher principal; in a

reciprocal relationship the principal is at the same time is the agent of its own agent. In other words, the second-tier bureaucratic constituencies appointed by policymakers are their agents. At the same time, they are policymakers' principals because being appointed by them, they also elect them. And vice versa, first-tier policymakers are agents of the second-tier bureaucrats and face the possibility of being removed from their posts by the latter. At the same time, the first-tier leaders are the bureaucrats' principals because they appoint second-tier bureaucrats and delegate to them some of their rights.

Again, it is worth emphasizing that according to the state-centered orientation of the new institutionalism, the analyzed type of reciprocal accountability is applicable within the polity. As for the relationship between state and society and, in particular, between leaders and the majority of population, it is strictly hierarchical.

This model of accountability in an authoritarian polity could be represented in a following way (see Fig.1.1):

Figure 1.1. Model of Reciprocal Accountability

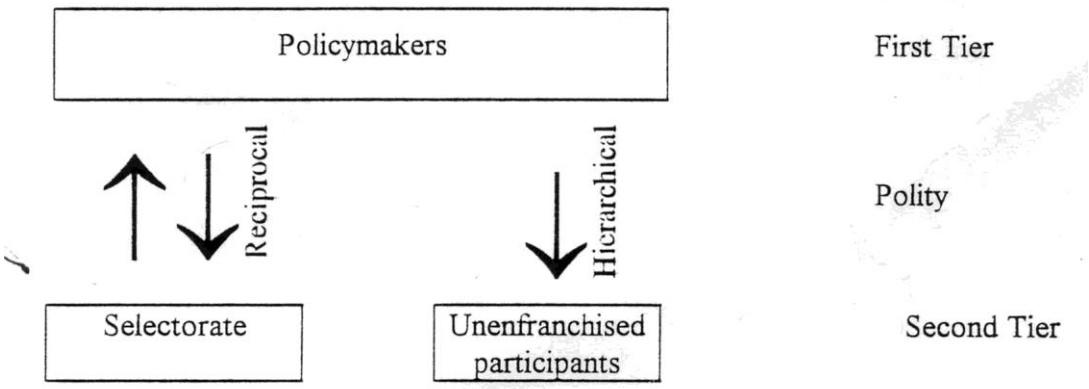


Figure 1.1 represents two-tier polity outlined by Roeder (1993). In the first tier, policymaking could be collective or directive. The second-tier selectors, drawn from nongovernmental interests or the governing apparatus, are accountable to the policymakers. The selectors also select the leaders, which, in turn, make the leaders accountable to the selectorate. Accountability is not continuous—it is rather sporadic. Reciprocal accountability is not simultaneous—it is rather nonsynchronous, with alternating periods of accountability of leaders to selectors and selectors to leaders. The

tug of war between two tiers could cause oscillation between the poles of reciprocal accountability and hierarchical despotism. The oscillation in the first tier is between directive and collective leadership. The presented model reflects what has been called above the normal polities, the ones exercised largely under existing rules. There are three important dynamics in authoritarian polities.

The first is a cycle of alternating directive and collective leadership. At the creation of a new regime or during the time that follows succession, authoritarian leaders push for collective leadership. Their rationale is a fear that their own autocratic power could turn against them, and they view collective leadership as a check. However, collectivities are characterized by two ambiguities: the relationship of a collectivity's chair to its other members and the relationship of a collectivity to other decision-making centers like the cabinet (Woodward, 1990, 137-64). These ambiguities create an arena for a tug of war between the collectivity and its leader that often results in the consolidation of directive rule. Then the rest of the collective leadership begins to break off and either contest directive leadership or, after the leader's removal or death, reestablish a new full-scale collegial rule (with the approval of a new leader).

The second dynamic of authoritarian polities is the balance of power shifts between tiers. Because reciprocal accountability is exercised non-synchronically, there are incentives and opportunities for each tier to limit the opportunities and power of the other one. This process is closely tied to the balancing of directive and collective leadership in the first tier. The greatest level of control of the first tier by the second is at the time of establishing collective leadership in the former. In contrast, the consolidation of directive rule in the first tier upgrades its power and control over the second.

The third important dynamic of authoritarian polities is the link between building coalitions within and across tiers and the policy process and its outcomes. The policy process and its outcomes are affected by: 1) the configuration of power in the first tier; 2) the structure of the suffrage within the second tier; and 3) the balance of power between tiers. The first link is explained by the fact that while during the first collective rule

political preferences must be balanced, a strong leader can impose his own preferences on his colleagues.

The second link (between the policy process and the structure of the franchise in the second tier) is determined by the desire to build coalitions with the second tier's bureaucratic constituencies. Policy conducted by the leaders (whether under a directive or collective rule) aims to please the most influential and powerful second tier constituencies. As an example, Ames points out the use of public expenditures as a weapon of survival by Latin American executives (1987, vol.1, 44-45, 47-73). In another example that compares Argentina and Chile, Remmer (1984, 218-19) concludes that because higher percentages of Argentinean adults were permitted to vote, "authorities had more incentive to search for lower, and middle class, support in Argentina than in Chile…".

Finally, in the third link, policy outcomes are affected by the shifts in power balances between the first and second tiers. Reciprocal accountability creates mutual expectations that Friedrich has called anticipated reactions (1940, vol.1, 3-24). Skidmore (1973, 17) illustrates this mutual influence and the shifts in expectations and obedience in his analysis of polity dynamics in the Brazilian military regime. He observes that despite strict hierarchy and discipline within the military corps, "…this structure allows room for an intricate process of participatory decision-making. The higher levels retain the final word, but they cannot diverge too far from the views of their junior officers". The differences in policy preferences between the second and first tiers (especially when the latter is under directive rule) will reveal themselves in policy with every major shift in power between those tiers.

The model of normal authoritarian politics has a predictive capacity. There is, for instance, a slim chance for reform under stable reciprocal accountability, with these chances increasing with the shift to directive leadership in the first tier. This leadership change is usually accompanied by a shift of the power balance between tiers in favor of the first tier. The greater possibility for reform in these conditions is explained by the

greater ability of a leader to impose his policy preferences on his colleagues in the first tier and to overcome the resistance of the bureaucrats in the second tier due to relative weakening of their power.

In contrast to normal politics, constitutional politics aim to revise the very rules of the authoritarian game. As Roeder notes, there are two constitutional issues that are central to the survival of bureaucratic reciprocal accountability: the composition of the selectorate and its relationship to policymakers (1993, 33). There is also a process of institutionalization that diminishes chances of constitutional changes.

The first issue deals with the expansion of the franchise. Leaders often bring in unenfranchised participants to strengthen their positions while building coalitions. This may be accomplished through an appeal to popular support or by creating new structures outside of bureaucratic constituencies, as did Gorbachev in the late 1980s. However, it could be also accomplished by bringing in unenfranchised bureaucratic constituencies.

Changing the rules in the power balance between two tiers is aimed at changing reciprocal accountability into some approximation of the hierarchical one. The selectorate tries to promote collective leadership in the first tier to strengthen its own power. Leaders in the first tier may try to expand the number of bureaucrats in the second tier to complicate possible unified collective action against first tier leaders.

The process of institutionalization reinforces the mutual expectations of political actors. At first, the rules of the authoritarian constitution are characterized by indeterminacy. For instance, the power and responsibilities of the General Secretary of the Communist Party were not well determined. The coordination of mutual expectations and the reduction in indeterminacy in relationships between political actors and structures brought by institutionalization increased the stability of the political order. Reduction of the indeterminacy of power in the course of institutionalization reduced vacillation between collective and directive leadership, the shifting power between the first and second tiers, and the corresponding cycles of policy. That reduced chances for reform, which both increased the stability of the political system and at the same time doomed it

by rendering it incapable of adapting to the changing social environments. One of the examples of such inability to implement reforms as a result of the institutionalization of the vacillation of power between the first and second tiers was the failure of the implementation of the so-called Kosygin reform that implied giving more power, autonomy and incentives to the primary organizations like plants and factories.

Cycles of Leadership and Changes in Policy and the Levels of Its Stability

In its mature form, the institutionalization of the Soviet political system assigned reciprocal accountability between the first tier, the Politburo, and the second tier, the Central Committee of the Communist Party. The strategic positions in this selectorate were held by the primary bureaucracies of the Soviet society, including the party apparatus, the state economic administration, the military, and the police (Azrael, 1970, 211; Brown, 1971, 140).

Two of these constituencies, namely, the part of military and economic administration, are often brought together by analysts who label them as a military-industrial complex. In this form, the selectorate is largely represented by: 1) the party apparatus, linked with ideology; 2) the military-industrial complex; and 3) the secret police (KGB). These three constituencies are usually referred to as an “iron triangle.”

The enormous complexity of the rules of authoritarian politics and their implementation in the form of coalition building makes it impractical to concentrate on each individually. I will analyze only those that are directly related to actual and potential socio-political instability. Several points should be made before turning to this analysis.

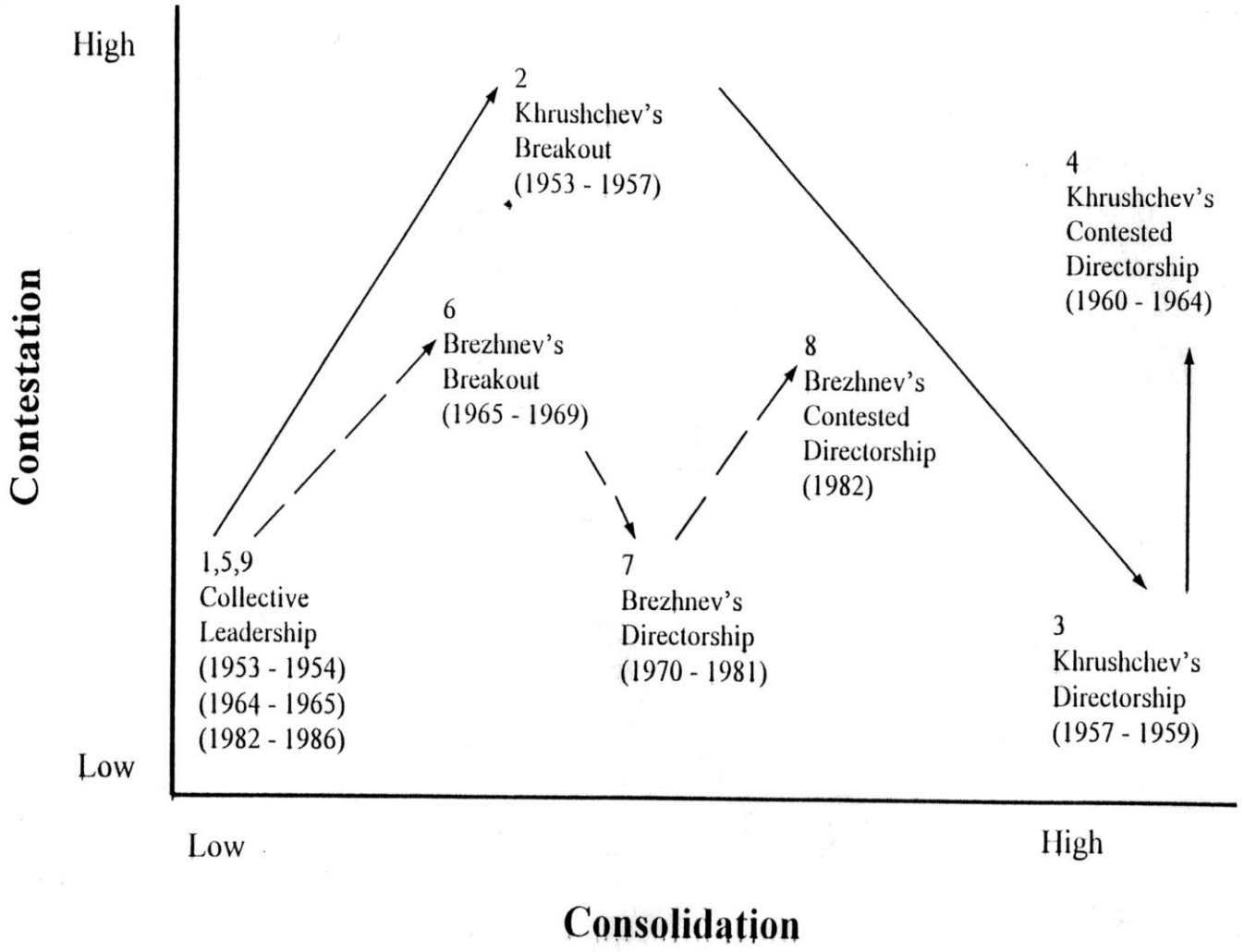
First, the cycling between directive and collective leadership (and accompanying shifts in power balance between two tiers) designates different models of policymaking. These models oscillate between high and low levels of policy contestation. These shifts can be related to the levels of consolidation.

Second, it is worth elaborating on the major issues that were contested in the normal polity. Priorities in budget spending were one of the most important issues of

contestation, with the main rivalry existing between the civil and military sectors of the economy. That implies contestation between different budget priorities, such as expenditures on producer- and consumer goods, and also between heavy industry and the so-called social sphere. The shifting cycles of leadership had a significant impact on these policy processes and issues. The cycling of leadership goes through four stages, each one represented by a certain political regime. The four distinctive types of political regime based on changing cycles of leadership, are: first, stable directive leadership (that is singular, unilateral rule); second, stable collective leadership; third, contested (or limited) directorship; and, fourth, the period characterized by the breakout of the leader.

The third type is nested within the broad category of directive leadership. The fourth type is nested within the category of collective leadership. Hence, according to the logic of leadership cycling, there are four consequent phases of cycling. After each succession, there is a period of stable collective rule. Then the leader breaks out (that is attempts to shift the balance of power toward a directive rule), creating instability within still existing collective leadership. If he wins (gains control), a new stable period of directive rule is established.

After that, the leader begins to be challenged by his colleagues, with the support of bureaucratic constituencies. This usually leads to the limited (contested) directorship. The latter often lasts up to the next succession that brings new collective leadership. The level of policy contestation increases in the phases of leaders' breakout and limited directorship. Policy contestation at these periods is both a product and a cause of instability. The dynamics of instability related to policy contestation caused by cycling of leadership could be represented as follows (see Fig. 1.2: **Instability Related to Levels of Consolidation and Contestation at Different Leadership Cycles** at page 26):


High
Low
Contestation
2
Khrushchev's
Breakout
(1953 - 1957)
4
Khrushchev's
Contested
Directorship
(1960 - 1964)
6
Brezhnev's
Breakout
(1965 - 1969)
8
Brezhnev's
Contested
Directorship
(1982)
1,5,9
Collective
Leadership
(1953 - 1954)
(1964 - 1965)
(1982 - 1986)
7
Brezhnev's
Directorship
(1970 - 1981)
3
Khrushchev's
Directorship
(1957 - 1959)
Low
High
Consolidation

The diagram presented by Roeder (1993) shows not just the static relationship between power consolidation and policy contestation (i.e. instability), but also the declining amplitude of both the oscillation between collective and directive leadership and of the level of contestation with each new cycle. This trend is caused by the institutionalization of reciprocal accountability.

The instability related to the reciprocal accountability mode of change can be rank-ordered in degree and intensity (from low to high): 1) asynchronic accountability between the first and second tiers; 2) breakout of the leader and corresponding policy shifts and reforms; 3) contestation of consolidated leadership and corresponding incoherence in policy, including reversals of the policy reforms; 4) procedural reforms; and, 5) constitutional reforms. Points two and three can be internally rank-ordered across cycles given the fact of diminishing consolidation and policy contestation with each new cycle.

This rank-ordering and periodization of various types of instabilities are important for future testing of the hypotheses about these instabilities' impact on fertility.

2.1.3. Social Contract Theory

Another theory that deals with the issues of instability and crisis in the USSR/Russia is that of the social contract. Cook, the main proponent of this theory, proposes that stability in the USSR after Stalin's death was based on an unwritten agreement between the political elite and the population: the political elite provided economic security, including employment and wage stability plus social welfare, and in return expected political compliance and quiescence (Cook, 1993).

The key element of Cook's model is that the population is viewed not as unenfranchised consent (the case with Roeder's model), but as a potential actor. This population can present a threat to stability should the political elite violate the social contract. To be precise, the actual party in a social contract is not the whole population. In the case of the USSR/Russia, the intelligentsia, including dissidents, did not participate

in the deal with the political elite, and thus was not willing to comply. Also, non-Slavic segments of the population of the Soviet Union had strong motivation for secession and were not easy partners in the social contract. The contract was actually maintained between the political elite and the Slavic, blue-collar workers.

Among competing explanations for long periods of apparent political stability is an attribution of full employment and social security, ideological principles, and built-in properties of the planned economy (Kornai, 1992; Kostakov, 1987). On the other hand, alternative explanations for the workers' compliance attribute it to the atomization and depolitization of the working class and personal dependencies of workers (Zaslavsky, 1982; Walder, 1986).

To prove that it is the social contract that accounts for both phenomena, Cook proposes two approaches. First, to demonstrate that it is fear of unrest that motivates the political elite to stick to the contract, Cook introduces so-called "pressure points." At certain periods of time, the ideological and economic constraints provide strong motivation, or pressure points, for the political elite to reverse some parts of the contract, either by increasing prices, or by cutting social welfare. If during these pressure point periods the government keeps up with the social contract ingredients, it proves the existence and importance of the social contract. One example of such pressure points is when Gorbachev proclaimed a new emphasis on the self-efficiency of factories and plants. Despite that, the government subsidized and bailed out potential and actual bankruptcies when faced the threat of unemployment.

Disproving alternative explanations of workers' political quiescence, Cook also demonstrates a strong correlation between failure in social contract delivery and worker unrest. The beginning of the deterioration of the social contract in the eve of 1980s and its acceleration in the early 1990s not only increased the number of strikes but also changed the very nature of workers' demands. Workers shifted from making locally focused demands (such as improving working conditions) to making broad political ones (as in reducing the role of the Communist Party committees at the factories).

Cook singles out several periods in the delivery of the social contract in the USSR: first, the period of stable delivery of the social contract (1953-1979); second, certain failures in the delivery or the beginning of the deterioration of the social contract (1980-1985); third, further deterioration of the social contract (1986-1991); and fourth, complete breakdown of the social contract (with the breakdown of the socialist state USSR in 1991).

Rank ordering of political instability may be performed along the lines of this periodization. The two reviewed theoretical models, reciprocal accountability and the social contract, have elements of incompatibility. The major one is different assumptions about population. While the reciprocal accountability model views the population as an unenfranchised participant, the social contract one ascribes it an important role that is taken into account in governmental decision-making. The first model defines periods of instability for the period from 1953 to 1990, while the second one views most of this period as stable, characterized with social contract-based political order.

Still, these two theories could be complementary in defining and rank ordering periods of instability. Because these theories emphasize largely different periods (the first one elaborates primarily on the Soviet period up to Gorbachev, while the second emphasizes the deterioration of the contract in the early 1980s and the period of the breakdown of the state in the 1990s) and because they analyze different types of instability, both can be applied to testing hypothesis about the impact of different types of instability on fertility. In the next section, I will provide full-scale rank ordering and periodization of different types of instability that will be based on both reciprocal accountability and social contract.

2.2. Social History of the USSR/Russia. Periodization of Different Types of Instability

In this section, the theories of reciprocal accountability and social contract are applied to the periodization of sociopolitical instability across Soviet/Russian history.

Along with that, instability related to the economy is applied to the reviewed historical period. Instability is viewed across the planes of policy, civil society and economy. Relying mostly on the theories of Roeder, Cook and Aslund, Soviet/Russian history is described with an emphasis on events that brought instability of a given type for certain years within the period of research interest.

Periodization of instability-related policies

From small to large scope, socio-political instability related to the theories of reciprocal accountability and social contract could be classified along the following lines:

Policy reforms: efforts to redistribute privileges and wealth by changing the policy outputs of government (for instance, shifting governmental spending between defense and social programs, heavy and light industries, producer and consumer goods).

Procedural reforms: efforts to redistribute power and wealth by changing the processes of policy making (transfers of decision-making among previously existing organs or changes in the configuration of formal organs themselves.)

Constitutional reform: a type of procedural reform where the most fundamental rules of policymaking and accountability are changed.

Social contract: the institutional setting providing stability of social system.

Procedural reforms, constitutional reform, and social contract dynamics, although of different scope, could arguably all be referred to civil society instability. Policy reform and procedural reform are viewed within the theory of reciprocal accountability and cycling of leadership. According to this theory, there are four such successive cycles: 1) collective leadership; 2) breakout of a leader under collective leadership; 3) directive uncontested leadership; and 4) directive contested leadership.

The instability of policy could be conceptualized as incoherent (among its elements) and inconsistent (over time) and viewed in a context of four instability types for the cycling of leadership: 1) the relatively minor instability within the most stable

cycle (uncontested directive leadership); 2) the relative instability of the cycles: from the most stable, directive uncontested leadership, to the least stable, contested leadership; and 3) the relative stability of each successive cycle with its corresponding one (for instance, Brezhnev's directive leadership vs. Khrushchev's directive leadership); 4) instability caused by reversal of reform. Correspondingly, the following periodization of stable and unstable periods could be defined:

Stable political periods

1953- June 1954- stable collective leadership (without contestation)

June 1957-1959- directive uncontested leadership by Khrushchev

Oct. 1964 - summer 1965- stable collective leadership (without contestation)

Early 1970-1981- Brezhnev's directorship

Nov. 1982-Dec. 1986- stable collective leadership (without contestation)

Unstable political periods

Latter half of 1954(53)-1957- Khrushchev's breakout (an attempt to shift the balance of power toward a directive rule)

1960-1964 Khrushchev contested directorship

1965-1969- Brezhnev's breakout (an attempt to shift the balance of power toward a directive rule)

1982- Brezhnev's contested (limited) directorship

The policy that stems from the cycling of leadership looks as follows:

Policy reforms

1. Collective Leadership after Stalin's Ouster

According to Roeder's "reciprocal accountability" theory, after Stalin's death in March 1953, the collective leadership's attempts at balance among themselves led to a

stalemate due to incompatible commitments. The new leadership was committed simultaneously to the comprehensive and expectation-raising process of expanding consumer goods output (the New Course), increasing investment in agriculture (the Virgin Lands Program), maintaining high investment in heavy industry, and keeping defense strong. In 1954, both the heavy industry and the consumer goods industry received a higher level of investment than in Stalin's Fifth Five-Year Plan. Trying to please all constituencies, the collective leadership settled on paper reforms. Four measures increased the purchasing power of the population: 1) price reductions in consumer goods; 2) a reduction in turnover tax so that the effective price of goods fell still further; 3) a reduction in mandatory annual deductions from each worker's wages to purchase bonds from the state from the equivalent of four weeks to two weeks of income; and 4) a reduction in taxes on the private plots of collective farmers, increasing money volume for peasants.

However, there was no increase in the output of consumer goods commensurate with the increase in disposable incomes, and that led to greater disequilibrium between supply and demand. Price-fixing due to new demand on the governmental stores caused an increase of consumer's queues. In early 1954, the minister of trade admitted, "The increased real wages of workers, the rise in the living standard of the rural population, and the systematic reductions of prices have all occasioned a rise in demand for consumer goods, which has outstripped production of certain items such as meat and animal fats. Some people even have the impression that there are fewer foods to be had now than these were several years ago."

The emerging budget deficit resulted in longer lines for consumers, inflation in the private and skyrocketing savings. The iron triangle took advantage of the opportunity provided by Khrushchev's breakout in the latter half of 1954. On Dec. 27, 1954, Khrushchev announced that heavy industry would be given still greater precedence in Soviet budgets and plans. By January 1955, Khrushchev denounced attention to consumer goods as a right-wing deviation, and announced the Virgin Lands Program,

which, in the short run, limited growth of the consumer goods industry. The 1955 budget reflected an 8.71% increase in heavy industry, a 12% jump in defense, a 25% drop in the investment in light industry, and the slowest growth in the consumer goods industry in ten years. Wages rose at their slowest rate for the 5-year plan period—1.5 percent against an annual average of eight percent for 1951-1954. For the first time since 1945, retail prices were not reduced, and mandated bond purchases for each worker disabled in 1955 were established.

1. Collective Leadership After Khrushchev's Ouster

After Khrushchev's ouster, collective leadership once again resulted in policy inconsistencies including proposals both for and against reform. However, bigger constraints on differentiation than in previous successions narrowed divergence. Alexei Kosygin and Nikolai Podgorny advocated policy innovations that would shift priority to either the consumer goods industry or social programs and also proposed reforms for increasing material incentives. Podgorny spoke in May 1965, proposing expansion of housing construction, urban amenities, health care, and services for the daily needs of the people. These proposals were not nearly as bold as Malenkov's "New Course." Again, the collective leadership tried to satisfy the demands of all factions in the 1965 budget, increasing wages at faster rate, cutting collective farm income taxes and expanding investment in consumer goods, while also expanding investment in defense, agriculture, and heavy industry. As before, this combination resulted in deficits and accelerated savings growth rates.

2. The Post-Brezhnev Succession

The breakout of Brezhnev within collective leadership (that is an attempt to shift the balance of power toward a directive rule) was again used by the iron triangle to satisfy their demands. In his major speeches, Brezhnev criticized emphasis on material incentives and insisted on investment in heavy industry and defense. The budgets for

1966, 1967, and 1968 (the years of Brezhnev's breakout) were similar to the budgets in preceding years in their emphasis on heavy industry and defense. However, increased balance within leadership and greater checks on Brezhnev's breakout than on Khrushchev's resulted in greater incoherency and inconsistency in policies. While growth in spending on heavy industry seemed stable over time, spending on light industry not only lagged, but was erratic.

The post-Brezhnev succession, from November 1982 through December 1986, was the longest period of stable (uncontested) collective leadership. Each of the three General Secretaries of that period (Andropov, Chernenko, and Gorbachev) reached out to different constituencies, primarily in the iron triangle, and departed from modern Brezhnev reforms. Emphasis shifted to investing more in heavy industry and defense. In Gorbachev's first budget for 1986 and 1987, defense spending was permitted to grow; the trend was reversed in early 1988. However, in the absence of strong pressure for reform during Gorbachev's decisive breakout attempt to change the contested rule for a directive one, the departures from Brezhnev's moderate reforms were mild—far from being a conservative backlash.

3. Khrushchev's Directive and Contested Leadership

Again, in his breakout (an attempt to shift the balance of power toward a directive rule) Khrushchev started building a coalition with the iron triangle. Also, he cautiously began to reach out to other constituencies. The sixth five-year plan (1956-60), adopted in Feb 1956, largely restated the priority of heavy industry. However, there were some signs of change. For 1956, expenditures projected for heavy industry fell by three percent, while light industry spending was projected to hold steady. In addition, defense expenses were down in 1956 by 9.4%, the start of a steady four-year decline.

Two years of Khrushchev's established directive leadership were characterized by additional policy reforms. Initially, the seven-year plan adopted on February 5, 1959, took an orthodox approach to spending: it stated that producer goods would still grow at

higher rates than consumer goods (9.3% vs. 7.3%). However, within months the plan was revised to put greater emphasis on consumer goods. A decree criticizing regional economic administrations for ignoring consumer goods production, issued on Oct 16, 1959, was followed in May 1960 by a revised plan aimed at increasing consumer goods production from the original seven percent annual rate to twelve percent. Khrushchev announced that an additional 25 to 30 billion rubles would be invested in consumer goods production.

However, in 1961 Khrushchev announced that part of the investment originally planned for the producer goods industry would be diverted to agriculture and consumer goods, although it is not clear whether this plan was ever carried through. At this time, Khrushchev's policy was increasingly contested, causing it to become less coherent and less consistent.

One example of incoherence was conducting assertive foreign policy while pressing for defense cuts on behalf of Khrushchev. Eventually the incoherence manifested itself in a departure from previous policies (inconsistency). For instance, while the 1961 budget, adopted on December 22, 1960, had cut defense allocation by five percent despite the pressure of the iron triangle to support the activist policies in Berlin and Cuba, the defense spending policy was reversed in 1961, with defense spending increased by 24.6%. In February 1963, Khrushchev announced that his consumer program had been postponed in order to focus on producers' goods and defense production. However, in 1963 Khrushchev made another reversal and began a new push for dramatic reforms in spending priorities. The proposed budget for 1964 contained a 4.2% defense cut, and in September 1964 Khrushchev proposed a revolution in spending priorities in which consumer goods production would be given precedence over producer goods.

4. Brezhnev's limited directorship and contested directorship

With Brezhnev achieving consolidation (that is, establishing directive leadership), the conservative priorities in spending were moderated and then slowly replaced. However, in comparison with Khrushchev's directorship, reform in spending was far more limited due to the institutionalization of “reciprocal accountability.” The 1969-1970 budgets generally reflected conservative priorities, such as increased allocation to heavy industry. However, there were some small signs of change in priorities. In both budgets consumer goods production growth and defense spending declined: six and 1.1 percent, respectively in comparison with a 15 percent jump in 1968.

The ninth five-year plan (1971-1975) reflected a more pronounced shift in priorities: it forecast that the rate of growth in consumer goods (44 to 48 percent) would be faster than the rate for producer goods (41 to 45 percent). The modern reformist orientation, in contrast to the priorities of the first five years of collective leadership and Brezhnev's breakout of 1966-1970, continued in the next two plans, adopted under Brezhnev in 1976-1980 and 1981-1985. The reformist orientation was characterized by increases in consumption, growth in light industry and agriculture, and a decline in the proportion of defense spending. In May 1982, the “Food Program” was adopted, promising substantial additional investment in rural amenities and agricultural infrastructure, including transport and storage. Despite the fact that Brezhnev made only small assaults on the privileged position of the iron triangle and did not threaten the steady growth of military allocations, Brezhnev's policy in his last year (1982) became the subject of contestation, with the tight economy providing an additional boost to it.

Procedural Reforms

1. Reinstatement of the Politburo, 1953

During his last year of life, in 1952, Stalin introduced a broad expansion of the leading party organs. The Politburo of eleven members and one candidate was replaced by a Presidium of 25 members and 11 candidates. The goal for that change was to

institutionalize Stalin's apex role of handpicking the inner-working bodies within the Politburo. Even after Stalin's death, the Presidium could erode the collective leadership by freeing its leader from many of the constraints imposed by fellow Politburo members. And from the constituencies' perspectives, the informal Presidium could threaten the interests of the iron triangle. The reinstatement of the Politburo restored the balance within collective leadership and secured the interests of the iron triangle.

2. Creation of Sovnarkhoz, 1957, and reinstatement of Ministries, 1965

Khrushchev created the Sovnarkhoz reform during his breakout (an attempt to shift the balance of power toward a directive rule), when he was still constrained by collective leadership. The move involved dismantling much of the central state's economic apparatus and transferring power to the regions, provinces and republics. Arguing that Moscow could not effectively administer all enterprises, Khrushchev proposed replacing ministries with regional economic councils that would be responsible for practically all production in their territory. This organizational reform eliminated Khrushchev's major competitors by undermining their power bases and transferring power from the Council of Ministries to organs he could more easily control. In the process, Khrushchev reached out and strengthened relationships with two other constituencies, the republics and provinces, and the first-tier actors of the party apparatus as they fought with the prerogatives of the state as represented by the Council of Ministers. Because the leaders of every district in the country demanded their own economic council, Khrushchev eventually had to break the country into more and smaller fractions than originally planned.

The main argument for reversing the Sovnarkhoz reform was that it had changed the balance between party and state in a way that could threaten the first-tier balance. To reinstate ministries, the support of the second tier was targeted by collective leadership. The reinstitution of ministries was tightly linked to the proposed reform to expand the financial resources and decision-making prerogatives of the enterprises (Khozraschet).

The elimination of party control (the case of Sovnarkhoz) was emphasized as a precondition for rising material incentives of the enterprises. The reliance on economic incentives by ministries as means of control over enterprises further diminished opportunities for party intervention.

3. Bifurcation of the party apparatus, 1962, and reunification of the Party Apparatus, 1964

The idea behind this reform was to remove constraints placed on the General Secretary by his coalition constituents, especially the party apparatus. In November 1962, Khrushchev won adoption of a scheme to divide the lower reaches of the party into two parallel hierarchies. The party organizations at the provincial level were divided into separate industrial and agricultural organizations, each with its own first secretary. Bifurcation was meant to increase Khrushchev's control over the party apparatus by expanding his patronage opportunities. That measure posed a certain threat to "apparatchiks" that might have been turned out of the office in late 1962 local party elections as part of the renewal of their organizations' leading organs. Along with weakening incumbents, this political reform strengthened Khrushchev's control over his most important second-tier constituency.

Some months after removing Khrushchev, the collective leadership began to reverse this reform in order to reestablish the balance in the collective leadership. The November 1964 Central Committee Plenum adopted a decree aimed at reunification of industrial and rural party organizations. In most instances, this resulted in the return of former first secretaries to their posts. The reversal of reform meant the restoring of power of the party apparatus in the selectorate during successions.

4. Creation of Production Associations, 1973

The least significant of the procedural reforms was the introduction of an intermediate layer of economic administration between the ministries and enterprises, the

production associations. The political aspect of this reform was engineering Brezhnev's breakout. In his effort to consolidate leadership Brezhnev tried to shift the balance between party and state. The introduction of production associations meant a shift in decision-making back to intermediate levels of the territorial administrative hierarchy. It also reversed the accountability of enterprises that were given some autonomy during Kosygin's economic reform in 1965. Creation of production associations reinstated superiority of administrative levels over economic levels.

Because institutionalization of reciprocal accountability created a strong obstacle to a greater level of consolidation, the introduction of this reform was more protracted than the other ones. The First resolution, launching production associations, was adopted on April 3, 1973. A renewed effort to extend associations throughout the economy was undertaken by Brezhnev at the 1976 party congress.

Summing up the discussion and historical accounts, it could be noted that the potential for reform rose with the emergence of a strong (uncontested) directive leadership. Reforms implemented by Khrushchev, who had the strongest directive leadership, had a real chance of threatening reciprocal accountability and balanced leadership. But even during his strong directive leadership, Khrushchev did not escape pressures from iron triangle constituencies, and his bravest reforms were still incoherent and inconsistent. The next successions were characterized by retreat from reforms, although sometimes a step forward made during the new cycle of leadership has led to a half-step back. With every new cycle, prospects for reforms diminished, due to the institutionalization of reciprocal accountability.

Constitutional Reforms

The main difference between policy and constitutional reforms in regard to instability is that while the former cannot shake equilibrium, the latter can cause so much disequilibrium that reform could either be converted into a new equilibrium or result in a return to an old one. Hence, the level of instability caused by a constitutional reform is

significantly higher than that caused by policy reform. In some periods constitutional reform in the USSR overlapped with policy reforms, as well as with the breakdown of the "social contract" and economic crisis.

Although it is hard to define an exact date for the launching of constitutional reform, it could be traced fairly reliably to January 1987. It lasted until Gorbachev's resignation on December 25, 1991. This period was punctuated by the following dramatic events:

January 1987	The Central Committee of the Communist Party starts the democratization program
June 1988	The 19th Party Conference endorses democratization
December 1988	Parliament amends the Soviet Constitution
March 1989	Elections to Congress of People's Deputies
Spring 1990	Republic and local elections
August 1991	Armed coup d'état fails
December 1991	The USSR formally dissolves

The instability of the constitutional reforms period stemmed from several interrelated factors. First, it was not clear whether the outcome would represent a new equilibrium, or if there would be a return to the old institutional system typified by reciprocal accountability. Second, the lack of vision or a proper ultimate goal by the leader led to inconsistency in–constitutional reforms. Third, limitations of the existing institutional environment led to inconsistency and reversals of constitutional reforms. Fourth, resistance from bureaucrats and the iron triangle added to the period's instability.

There were three preconditions that initiated the constitutional reforms. First, the politics of *"glasnost*" ("openness") was introduced in 1986, which included openness in public debates and easing censorship on mass media. This began before the actual start of

constitutional reforms. The importance of *glasnost* for the reforms was due to the fact that it allowed criticism of policymaking and the existing institutional order.

The second precondition was the expansion of the selectorate and changes in criteria for membership. In February 1990, Gorbachev proposed new rules for the election of the delegates to the upcoming Congress, but in the face of resistance it was decided at the Central Committee Plenum to let each regional organization establish its own regulations for electing delegations to the Congress. This opened up the process somewhat, but many competitive elections were still controlled by the Party secretaries. The other path to changing the selectorate included the creation of a Presidency, expansion of the legislative authority of the Soviets, and devolution of central powers to the lower levels of government. This process began with the adoption of an amendment to the Soviet Constitution in December 1988. The accountability of the President to the population according to this amendment was indirect, but by another constitutional amendment adopted on March 1990, future candidates for the post of the President of the USSR would stand for popular elections every five years.

December 1988's amendments to the Soviet Constitution shifted legislative powers from the Central Committee of the Communist Party to the new Congress of People's Deputies and the Parliament (Supreme Soviets). It resulted in bringing in a broader spectrum of constituencies that compromised the monopoly on power by the previous constituencies. Transferring central powers to lower levels of government was supposed to result in a greater responsiveness to the populace in a policymaking. Elections to the Congress of People's Deputies were held in March 1989, with 2,895 candidates standing for election to the 1,500 seats allocated to popular constituencies.

The apotheosis of constitutional reform was the amendment adopted in March, 1990, the article of the Soviet Constitution that removed restrictions on social organizations outside the Communist Party. The article that guarantees the rights to form alternative parties was also adopted. In October 1990, the law was adopted that gave

legal status to political parties as groups seeking representation in the Soviets and seeking to form the bodies of state power and administration.

The third precondition that initiated constitutional reform involved improving the control of elected officials over bureaucracy. Such control was a requisite for transforming bureaucratic reciprocal accountability. As a consequence of the amendment to the Soviet Constitution adopted in December 1988 and legislation adopted at the first sessions of the new Congress of People's Deputies and the Supreme Soviets were given the right to ratify and remove the Premier (Prime Minister). In December 1990, the President gained direct control of the power of appointment over the new Cabinet of Ministers and over the Prime Minister. After the August 1991 coup, Gorbachev was forced to resign from the post of General Secretary of the Communist Party. Subsequently, in his new role as President, he began to build a presidency that was completely independent from the Communist Party.

Thus, instability manifested itself in inconsistencies through the statements and policy of the General Secretary, resistance from the iron triangle, and the unpredictable outcome of constitutional reforms. Gorbachev shifted the political balance by creating new political bodies and making new appointments of reformists in the Politburo. However, there were several reversals in promoting more reformist oriented allies and substituting them with the conservative ones. The statements on a multi-party system and market economy were inconsistent and vague.

The magnitude and scope of instability reached its climax in 1989 and especially in 1990 and 1991. The inclusion of Union republic representatives in the Congress allowed them to raise the issue of secession from the Soviet Union. Facing the threat of succession in April 1989, troops were sent to Tbilisi, the capital city of Georgia, killing 19 demonstrators. Several killings took place in Lithuania in early 1990. The republic demanded, along with secession, the creation of a strong presidency that would oppose the iron triangle. After losing badly in the Republican elections on March 4, 1990, many Russian conservatives united to create a new Republican Communist Party. They used

this newly formed party both to oppose Gorbachev's reforms in the USSR and to oppose reformers in Russia that organized around Yeltsin. The reformers pressed for the creation of a popularly elected President of the Russian Republic. In June 1991, Yeltsin won the election with 57 percent of the popular vote.

The empowerment of new social forces and the threat of the breakdown of the Soviet Union brought two developments crucial for stability in 1990-1991. The first one, in the latter half of 1990, was the proposed economic plan of the academician Shatalin. It not only called for sharp cutbacks in spending on the military and police (examples of policy reforms), but also suggested selling off many of the state-run enterprises run by the actual ministries, transferring economic and fiscal planning to the republics. The plan also limited the central government's role in issuing currency and in control over monetary policy.

In September 1990, Gorbachev proclaimed his support for Shatalin's Plan over more conservative programs. Under pressure of conservatives who demonstrated their muscle by exercising military maneuvers around Moscow, Gorbachev backed down and supported a more centrist plan, causing desertion of the reformists from his coalition. To maintain power, Gorbachev appointed several conservatives at high positions, all of whom later participated in a coup d'état and an attempt to strip him of the presidency.

The second development came the following year. Gorbachev planned to restart the process of institutional transformation by pressing for a new union treaty that would shift power to the republics. The iron triangle tried to block the shift of power to the republics through an institutional maneuver, which failed. The treaty that would create a new Union of Sovereign States, in which the central power of the iron triangle would decisively shift to the republics, was scheduled for signing on August 1991. The day before the Union Treaty was scheduled for signing, the iron triangle staged a coup d'état. The plotters created a State Committee for the State of Emergency and declared preservation of the Soviet Union as their goal.

The defeat of the coup d'état within a week accelerated institutional change. Russian President Boris Yeltsin, who played a significant role in defeating the coup d'état, signed a treaty proclaiming a Commonwealth of Independent States among three republics—Russia, Ukraine and Belarus. The leaders of other republics declared secession from the USSR and joined the Commonwealth. On December 25, 1991, Gorbachev resigned as leader of the state that didn't exist anymore, the USSR. The breakdown of this communist empire ended the period of institutional reform.

Social Contract

Major periodization in the delivery of the social contract, according to Cook (1993), may be established as follows:

1. Stable provision of the main elements of the social contract (1961–late 1970s)

This period is typified by employment security, broad social welfare, increasing income equality, and stability of retail prices and wages.

2. Deterioration of the social contract (late 1970s–early 1980s)

The beginning of a deterioration of the social contract started in the late 1970s (around 1978), but became more profound by 1981. This period is often described as stagnation, some of which was related to government control of such elements of the social contract as prices and wages. The stagnating economy also had an impact on the other elements of the social contract, such as welfare and medical services.

Rising levels of repressed and hidden inflation characterized the economy of the late 1970s and early 1980s. The results of repressed inflation included persistent shortages of consumer goods, steady increases in the ratio of collective farm market prices to state retail prices for comparable goods, rapid increases in the population's savings, proliferation of gray and black markets, growing corruption and, eventually, formal and informal rationing. Although shortages of goods had long been a problem in

the Soviet economy and is considered a built-in trait of a command economy, in the late 1970s shortages began to show up in some goods that had previously been in surplus. Lines grew longer, poor harvests exacerbated food supply problems, and, in 1981, formal rationing was instituted for some goods. Chronic shortages and unsatisfied consumer demand provided fertile soil for the growth of a second black market economy. Those directly involved in black market activity, both bribing and bribed, became recipients of an unofficial, unrecorded income. Official wages grew during the period, but at a slower rate.

The delivery of other important elements of the social contract, such as welfare, medical services and childcare, also deteriorated. Poorly trained caregivers, along with caregiver shortages, resulted in grandmothers taking care of children. The pattern of stagnation and decline was repeated in health care. In the early 1980s, expenditures had dropped to a negative per capita growth rate, with health conditions significantly worsening. Brezhnev was able to fulfill the social contract--though at a declining level of performance -- until 1981. After that, per capita spending on critical social services began to decline.

3. Reform Policies and the Erosion of the Social Contract (1986–1990)

From 1986 through 1988, Gorbachev initiated or stated intent to institute policies that threatened to undercut the basic provisions of the social contract in all major policy areas: employment security, wage equality, price stability and socialized services. Changes in industrial policy began to erode employment security and stability, heightening demands for productivity and exacerbating workers' fears of displacement. Wage reform, which increased differentials among skill grades, was also introduced. In addition, a limited cooperative sector was legitimized that began to weaken state control over consumer prices and challenged the monopolistic position of state enterprises in the consumer sector. Proposed price reforms threatened state subsidies.

In the context of this research it is important to look at the wage dynamics of this period. The idea of wage reform was to diminish egalitarian distribution of income and to tie wages to quality and productivity. In many enterprises, reform produced labor productivity gains and cuts in the labor force. Because new jobs had been created, wage reform did not necessarily lead to increased unemployment. Throughout 1987, overall increases in industrial productivity exceeded wage increases. Greater differentiation in wages introduced by wage reform correlated with higher productivity.

In 1988, however, the impact of reform policies on wages markedly weakened, as workers used new political freedoms to strike against lower wages. Although the strikes were not massive, the government mostly stuck to the social contract and forced managers to comply with workers' demands. Also, by late 1988, industrial managers were motivated to increase wages due to inflation in the consumer economy. Thus, the drop in wages in 1987 was followed by an increase.

Although the emergence of the possibility of linking wages and employment with productivity threatened broader instability related to the deterioration of the social contract, ultimately this possibility was not fully realized. Reform policy did result in significant erosion of labor's social contract guarantees: some workers were released from their jobs, others experienced the fall of wages, and many experienced unaccustomed economic insecurity. But by early 1989, concessions had limited the painful effects for workers: factories were allowed to reabsorb released workers, bankrupt enterprises were bailed out, wage discipline was relaxed, privatization was severely limited, and retail price reform was indefinitely delayed.

A similar retreat from initial reforms threatening other provisions of the social contract occurred in 1988–1989. A new law slashed subsidies to unprofitable state enterprises, with the goal of reducing subsidies to the loss-making plants by 30% in 1989. However, this hard decision was delayed several times and, in fact, industrial subsidies in 1989 and 1990 actually increased.

Another important decision was related to the restructuring of the health sector, including privatization of some medical services and the creation of medical cooperatives. According to the plan, paid services would have affected only about two percent of medical services over the next 15 years. The legalization of cooperatives was formalized by the adoption of Law on Cooperatives in May 1988 and, by the Fall of 1988, medical cooperatives were rapidly developing. The results of the cooperatives' establishment were mixed and included public complaints about abuses and corruption in that sector. The government responded by placing restrictions on all cooperatives, but especially medical cooperatives. In October 1988, the USSR Ministry of Health issued an order prohibiting the leasing of "expensive" and "unique" diagnostic equipment to cooperatives. In late December 1988, the Council of Ministries adopted a resolution further restricting the activities of virtually all medical cooperatives. As a result, a significant number of cooperatives were closed, and many of them faced accusations of violating the law. In the long run, the number of medical cooperatives continued to grow but at a very modest rate in comparison with the rate of growth in 1988.

The years of 1989 and 1990 were marked by unprecedented levels of strike activity. The national miners' strike of summer 1989 confronted both national and local leaders with new challenges. The relationship of strikers' demands with social contract provisions was complicated. Strikers demanded improved pay and pensions, better provision of food, more housing construction, and municipal and medical services, all of which were elements of the social contract. On the other hand, their central demand was that the enterprises become economically independent and self-managed by the labor collective, in accord with the provisions of the law on state enterprise. This included demands for the right to control disposition of plant output, the right to manage profits, and autonomy from the Ministry. In other words, it meant a departure from the social contract. In 1990, the strike reached its peak. The main focus of the strikers now was not local economic conditions, but a political demand to end the dominating role of the Communist Party. What increased the instability was that, along with the political

consequences of the strike, fulfilling the miners' demands would have resulted in higher energy costs for all domestic consumers.

Instability Related to Economic Crisis

Not every economic crisis is related to instability. In communist countries, there are permanent, built-in crises such as shortages. In these cases, there is no sign of instability; the crisis is stable. The stagnation of the late Brezhnev years can be explained by a combination of the exhaustion of readily available resources and a growing systemic dysfunction as the distorted incentive structure increasingly dissuaded people from honest work.

The first years of Gorbachev's reforms (1985–88) were not characterized by a sudden crisis of a new origin. In these years, national income did not fall, although it remained nearly stagnant. Unemployment was predominantly regional (concentrated mostly in Central Asia and Caucasus) and remained low. The built-in and aggravated systemic flaws thus could not explain the severe economic crisis that exploded in the USSR in 1989 and culminated in 1990, when it seemed the economy would disintegrate altogether. The crisis was caused by the reforms themselves— reforms that led to growing monetary imbalances, aggravated fiscal imbalances, an administrative stalemate, calamities in foreign trade, a decline in price stability (severe inflation) and shortages of the most basic goods.

After the breakdown of the USSR in 1991, the liberal economic reforms by Russian Prime Minister Yegor Gaidar brought severe inflation due to loosening of price controls as well as a sharp polarization of society. As noted by scholars (Aslund 2007, 2008), a tiny class of wealthy "New Russians" had emerged, while a majority of the population, especially senior citizens and those who were disabled, sank below poverty level. The middle class was very small and consisted mostly of banking clerks. By 1997–1998, the economic situation had somewhat stabilized. Inflation had slowed down, economic indicators showed some signs of growth, and Russian companies' shares

soared. Then, in August 1998, the severe plunge of the ruble, Russia's national currency, marked a new wave of economic instability.

Periodization of different types of sociopolitical and economic instability and crisis

The provided historical survey and corresponding conceptualizations allows for the instability and crisis periodization and ranking that is represented in Table 2.1. The hierarchy of the levels of instability is defined by the previous analysis of the various kinds of instabilities related to the power struggles among political elites (within "reciprocal accountability" theory), and to the stages of social contract deterioration.

Table 2.1. Ranking of strength of various types of instabilities in the USSR/Russia

(1 to 6 – arranged from lowest to highest)

Rank	Type of instability	Corresponding years
1	Brezhnev's breakout	1965-1969
2	Khrushchev's breakout	1954-1957
3	Brezhnev's contested directorship	1982
4	Khrushchev's contested directorship	1960-1964
5	Deterioration of social contract	1978-1985
6	Erosion of social contract	1986-1990

Some of these instabilities types overlap with each other and, what is very important for future hypotheses testing, coincide with the unfolding economic crisis. As mentioned in the previous discussion on the topic, the latter has started to show up in the mid-1980s and has rapidly accelerated in the late 1980s. According to theories introduced in this Chapter (the ones by Roeder and Cook), the strongest instability is experienced at the times of deterioration and, especially, the breakdown of the social contract in the late 1970s and 1980s. Constitutional reform is ranked second in the instability's strength. At one point, it coincides with "social contract" deterioration and provides the researcher with an opportunity to check on combined effect, along with an effect of each factor. Contested leaderships (years 1960-1964 and 1982) scored lower, and the slightest

instabilities are conducive to leaders' breakouts. According to reciprocal accountability theory, each successive breakout causes a lesser degree of instability, due to the institutionalization of reciprocal accountability. Thus, according to Roeder's logic, Brezhnev's breakout in 1965-69 is represented with lower height of instability than the years of Khrushchev's breakout in 1953-57. A separate curve shows the progression of economic crises from the built-in crises of command economies to the severe crisis in late eighties and nineties (based on the periodization provided by Aslund).

Periodization and ranking of instability and crisis allow for testing the hypotheses about their effect on fertility behavior. In order to perform this research, however, one also needs a theory that links instability and fertility and provides explanatory claims of why and how the former affects the latter. These issues are explored in Chapter 3.

Chapter Three

Theoretical and Methodological Approaches to the Application of Demographic, Economic and Sociological Theories to the Research Questions

This chapter works out a strategy for applying existing theories—whether in their original or modified form—to the area of interest, that is explaining short-term fluctuations in fertility behavior in states of societal instabilities of different types and scale. The first section discusses the nature of short-term fluctuations of fertility, their consequences, and identifies the persistent questions in the existing research. The second section is devoted to an analytical overview of existing demographic theories of fertility with the goal of finding one that may potentially apply to the research questions. In the third section, theories of fertility are analyzed from a broader rational choice perspective, and the case is made for employing rational choice based uncertainty reduction theory. The strategies for modifying this theory to apply it to the given research are discussed,

and the testable model linking societal instabilities with fertility outcome is developed. In the final section the hypotheses based on the model related assumptions, are formulated.

3.1. Short-Term Fluctuations in Fertility

Like natural and man-made disasters, social and political instabilities often cause fluctuations in fertility that in many cases are short-term. For the purposes of further analysis and application of theories in order to explain this class of fertility dynamics, we will look at examples of the latter, outline the problems of adequate and coherent explanations and demonstrate the significance of short-term fluctuations in fertility.

Short-term fluctuations in fertility remain one of the most under-researched areas of demography, with many examples of short-term fluctuations in fertility that cannot be adequately explained within the existing theoretical framework. For instance, during the period from the early 1980s to the late 1990s, Sweden experienced stronger swings in fertility rates than any other Western country. During this period, the Total Fertility Rate (TFR) in Sweden rose from its lowest-ever level of about 1.6 in 1983 to around 2.1 in 1990-92, then dropped to a new low of about 1.5 in 1997 (Hoem, 2000). Potential explanations name worsening economy and cuts in social welfare as the major causes of fertility decline. However, these potential causes fail to resolve the question of why Sweden's fertility swings were not matched by European countries with similar or worse economic conditions—especially since, by some accounts, fertility in Sweden had begun to decline before benefits were trimmed (DeVanzo and Grammich 2000).

Short-term fluctuations in fertility in the former USSR during the mid-1980s also puzzle demographers (Andreev 2016; Arkhangelsky 2015). In 1981, the government of this communist state introduced a pronatalistic population policy that included such measures as partially paid maternity leaves, tax deductions for families with two and more children, and other bonuses. For several years, fertility showed a steady increase, but then started to decline, a pattern typical for countries that instituted similar population policies, including France, Hungary, Czechoslovakia, Eastern Germany and Poland. In the former USSR, a new puzzle

emerged when fertility suddenly started to increase again in 1985, reaching its peak in 1986, and then began to decline once more. This trend was seen across most regions of the country, both in urban and rural areas. Despite many attempts to explain the "mystery of 1986," there has yet to be a clear understanding of the social factors that produced these short-term fluctuations in fertility.

Also, the sudden and short-lived fertility increase in Czechoslovakia in 1969, occurring shortly after the Soviet invasion, has yet to be explained. No population policy was implemented in the years before the trend, nor was there any other noticeable factor present that is traditionally related to fertility swings. There is one possible explanation, the paradoxical, counter-intuitive effect of political and social instability that followed newly achieved political freedoms of the "Prague Spring," that is conducive with the premises of this research outlined further.

We see rapid and steep declines in fertility nowadays in countries undergoing the transition from an administrative-command economy (characterized with the total control on behalf of state and a lack of competition) to market economy and democracy. There is wide controversy among scholars about the causes of these fertility trends in the countries of the former Soviet bloc. Demographers variously point to declines in standards of living, stress related to rapid changes in socio-economic systems, the start of the Second Demographic Transition, and the postponed effect of spliced birth intervals during previous decades, to name but a few, as the major causes accountable for steep fertility decline (Da Vanzo and Grammich 2000; Naseleniye Rossii 2002; Perevedentsev 1999: 17-40; Vishnevsky 1996: 1-34; Zakharov and Ivanova 1995). Accordingly, it remains subject of academic and, increasingly, political debate, whether these fluctuations are of a short- or long-term nature (Da Vanzo and Grammich 2001: 21-25; Field 2000: 11-42; Vassin 1996: 175-200; Zakharov1999: 292-317).

Among the most curious and the least researched short-term fluctuations in fertility are those occurring during times of societal instability, whether that instability is taking place in states, world systems, economy, political processes, or ideology. There are many examples of such instability throughout history. The terrorist attack on the World Trade Center on September

11, 2001, for instance, caused fear of instability related to citizens' security, functioning of the airline industry, and the safety of the Internet, to name but a few; actually, the very vitality of Western civilization was challenged. It has caused short-term fluctuations in fertility in the areas neighboring Lower Manhattan (this case is discussed in greater detail later in the section).

Short-term fluctuations in fertility are consequential for many reasons. First, they have a huge impact on social and economic dimensions of society, and in particular on education, labor markets and social security. Second, short-term fertility fluctuations' impact is not limited to the timing of the fluctuations themselves: Short-term fluctuations in fertility create an "echo effect' that affects society for long periods, often several generations. The "echo-effect" is a demographic phenomenon of the long-term and repetitive consequences of fertility rates for the future sex and age structure of population and, in turn, its further impact on fertility rates. Third, short-term fluctuations in fertility often create new social and economic environments for the corresponding generations that lead to new demographic patterns, social strategies and specific lifestyles. These, in turn, heavily impact the social, cultural and political elements of society. Finally, various natural and man-made disasters may lead to different durations and spatial distributions of short-term fluctuations of fertility that result in diverse consequences for societal life.

I will illustrate these points with several examples from modern US history. Short-term fluctuations in fertility have clearly manifested themselves in the period from the 1930s to the present. Scholars identify four distinct periods over the past 80 plus years in regard to fertility in the US: 1) the Depression era (1930s), with low TFR and small birth cohorts; 2) the post-War Baby Boom (1946-64), during which the TFR increased by almost 50 percent; 3) the Baby Bust (from the mid-1960s to the mid-1970s), typified with a sharp falling of TFR; and 4) an "echo phase" (from the mid-1970s to the mid 1980s), with the stable and below-replacement TFR, however, marked with increasing number of births due to a large portion of childbearing age population reflecting an "echo effect" from the large number of births following World War II (Shapiro 1997).

Although these short-term fluctuations in fertility impacted multiple societal spheres and areas, in the following discussion, I will limit illustrations of these impacts to three important societal spheres: education, the labor market, and social security. As for the first sphere, growing numbers of baby boomers resulted in increased demand for primary schools and, therefore, primary school teachers. This growing demand was not met, as new college graduates were from the small cohorts of the 1930s. This imbalance was repeated in the late 1950s and early 1960s at the secondary school level. As a result, persistent shortages in the market for schoolteachers occurred, leading to upward pressures on teachers' salaries, compromising hiring standards, and resulting in low unemployment for qualified teachers.

The Baby Bust, in turn, has led to a decline in primary school enrollments, and later, to a decline in secondary school enrollments. Significant fluctuations in the market for Professors were also seen at the college level. With the core demographic pool for college enrollments (aged 18-22) shrinking, colleges began seeking enrollment of nontraditional students more intensively.

Several decades later, in the late 1980s, we witnessed a small-scale replication of what happened with the advance of baby boomers. The increase in fertility at this time impacted primary school enrollments and hence, the demand for schools and teachers. Increase in fertility in the late 1980s is largely attributable to the "echo effect" of the Baby Boom, that large segment of the population that came after WWII who were now bearing children. To sum up, short-term fluctuations in fertility led to long-term cycles of fluctuations in demand for schools and teachers, consequences for educators in regard to salary, changes in the proportion of college students seeking careers in education and changes in enrollment policy.

Short-term fluctuations in US fertility over the last 80 plus years were equally consequential for the labor market as a whole. As noted by scholars (Shapiro 1997), fertility has a direct effect on the number of labor force entrants, with a lag of roughly 20 years. Also, it has affected the number of retirees, with a lag of 55-65 years. Therefore,

short-term fluctuations in fertility over the analyzed period of time impacted both the growth rate of labor force and its age composition.

For instance, the small number of new entrants to the labor force in the 1950s, drawn mostly from the small birth cohorts of the Great Depression of 1929 to early 1930s, contributed to an increase in the average age of the working population. The smaller numbers of young labor market participants was also the major factor in declining rates of job mobility (not behavioral changes, as was mistakenly assumed). Likewise, in the late 1960s, the average age of the work force was reduced due to the influx of baby booming cohorts into the labor market. While an expanding economy at that period allowed for placement of this cohort, by the 1970s such an outcome was no longer the case. Changing demographic composition contributed to the increase in so-called natural rate of unemployment (the one not related to cyclical unemployment). The entrance of baby boomers into the labor market also contributed to the decrease in relative earnings of young workers, as was noted by various scholars (Shapiro, 1997; Easterlin 2000; Olsen 1994).

Alternations between small and sizeable cohorts due to short-term fluctuations in fertility continued for a long period of time, resulting in corresponding outcomes for the job market. For instance, the entrance of the relatively small cohorts to the job market in the late 1980s and early 1990s resulted in a relative reduction in unemployment despite the cyclical recession of the early 1990s.

During this period, short-term fluctuations in fertility also significantly affected the very core of the social security system. This is the area where long-term consequences of short-term fluctuations of fertility are strongly and directly visible, even without taking into account the "echo effect." Indeed, the impact of Baby Boom generation retirement began around 2001, 60 plus years after the actual births of the first representatives of this cohort. The impact will last to almost 2040. The period from 2011 to 2030 will be typified by a steep increase in numbers of retirees, reaching some 70 million in 2030.

The impact of such a rapid "graying" of the population on the US social security system is huge, since the latter is arranged on the basis of a principle described as "pay-as-you-go." Pensions for retirees are paid from the revenues generated from the taxes of today's employees. In case of the Baby Boomers' retirement, this means that the taxes funding their pensions will be collected from the smaller numbers of the Baby Bust and subsequent birth cohorts, increasing the dependency ratio and thus requiring increases in social security taxes.

As noted by various scholars (e.g. Knickman and Snell, 2002), the choice between increasing Social Security taxes and reducing benefits for retirees is a very delicate and emotionally charged issue. Many approaches have been offered in order to keep the social security system sound, including gradually raising the retirement age, mandating private savings and creating individual retirement accounts. All of these changes would result in significant social, economic and political consequences. The primary reason these changes are needed is these very short-term fluctuations in fertility, while increases in lifespan and rising rates of women participating in the labor market are distant second and third causes. (Shapiro 1997).

The third consequence of short-term fluctuations in fertility is that new patterns of social, economic and demographic behavior are adopted, largely due to the size of the cohort and corresponding economic challenges. In that regard, the US Baby Boom cohort is a perfect example. A short-term increase in fertility, as already mentioned, was the primary reason behind the emergence of Baby Boomers. When the first representatives of this cohort entered the job market in the second half of the 1970s, they faced adverse labor market conditions. In part, this was due to the economic situation that was defined as a "quiet depression", and in part with the very size of this cohort that, according to Easterlin's theory, shifted the balance of the "supply-demand" equation of the labor force.

Indeed, the relative income of the first Baby Boom cohorts entering the labor market in 1977 proved smaller than that of pre-Baby Boom cohorts. However, Baby

Boomers were able to reverse that unfavorable trend by making adaptations to their economic and, especially, demographic behavior. These adjustments included deferred marriage, reduced childbearing, increased labor force participation of wives, and formation of unmarried-couple unions living with grandparents.

As noted by Easterlin, MacDonald and Macunovich (1980, p.781), there was a …"marked decline in proportion of baby boomers that are members of married couple, two-parent families, from 73 to 48 percent. Of this 25 percentage point decline, four-fifths is accounted for by a shift to childless living arrangements; the remainder, by a rise of those in single-parent situation." Scholars also stress the implications of these demographic shifts for the Baby Boomers' economic status. Most importantly, the average income of childless persons is about 55 percent higher than that of persons in married, two-parent families. And although the income of a single parent is still one quarter lower, the upward shift in Baby Boomers' income prevails. Easterlin et al. (1980) identify two reasons for the increase. First, the magnitude of the demographic shift to the higher income is greater. And second, there is a greater income gap between the higher income and traditional two-parent married couple than the one on the lower income side. Other explanations for this changed demographic patterns could be, however, also brought up, ideational changes (not linked with the unfavorable trend at the job market) being one of them.

The Baby Boom generation's behavioral adjustments to adverse economic conditions include not only becoming childless but also reducing the number of children by some 0.5 in comparison with the previous cohort. That meant fewer consumers of family earnings. It is worth noting that although Baby Boomers postponed the births of their children for the ages after 30, and fertility in these age groups thus increased, the complete fertility of this cohort was still lower than that of their predecessors.

The next important adaptation strategy of Baby Boomers was, arguably, an increased female participation in the labor force. The correlation between the latter and a family income is clearly positive. However, the question is to what extent this

phenomenon could be attributed to cohort size, or it is rather changes in values and job opportunities that are the main contributors. Pampel and Peters (1995, 176) cite scholars claiming the validity of primary impact of the cohort size. Easterlin, for instance, notes that employment of young women stayed low in the 1950s despite many job opportunities, but then rose during the 1960s. Another cited scholar, Wacheter (1977) demonstrates close correspondence of rate changes in female participation in the labor force with the dynamics of male relative income. Moreover, the opposite pattern emerged for older women. Their participation in labor force in the 1950s rose while that of younger women declined. Pampel and Peters (1995, 176) conclude that "… if demand of ideology explains changes in female participation, we would expect to have similar changes among younger and older women." However, this claim is not a proof since the ideological change could have occurred only among younger women. It is also possible, that just the changed pattern of fertility (having more children) among the younger cohorts was the main factor of their reduced participation in labor force.

There are also other important behavioral changes that stem from cohort size and are related to the above-mentioned social, economic and demographic adaption strategies. These changes include a decrease in self-fulfillment as a motivation in the job search, diminishing interest in public interest-related work and causing a decline of interest in political involvement. Easterlin and Crimmins (1991, 529-530) argue against linking shifts in Baby Boom cohort attitudes and behavior to alternative explanations. Examples of such links include connecting changing political and social climate with greater cynicism and disillusionment, personal prospects or societal outlooks, and/or socialization experiences, including break-up of families, decline in family size, personal wealth, TV exposure, or changes in religiosity. So, Easterlin and Crimmins (1991) attribute these negative behavioral changes primarily to the growing sense of economic deprivation that, as mentioned before, is explained by both economic decline and huge cohort size and "…the behavioral changes thus induced, such as greater labor force participation of mothers and reduced childbearing" (1991, 530).

Finally, short-term fertility fluctuation-induced changes in cohort size impact important parameters of social disorganization such as malaise, crime, suicide and alienation. Some scholars link the increase of these social indicators with the above-described adaptations to adverse economic conditions. Pampel and Peters (1995, 160), for instance, write:

> *"With these adaptations, however, men in large cohorts may feel stress and disappointment because they are unable to fulfill traditional roles. The sacrifice of family life to maintain economic status likely induces stress, which results in social malaise, crime, suicide and alienation. In contrast, members of small cohorts do not face the same conflict between resources and aspirations; their relative income allows them to meet their consumption aspirations even while marrying early, having many children, and maintaining traditional family roles". In a similar vein, scholars bring attention to the studies concluding that weak ties among members of the large cohort to traditional family roles and to the labor force contribute to harmful social behavior."*

Pampel and Peters (1995, 186-189) cite research by Easterlin and Schapiro (1979), Holinger et al (1988), and O'Brien and Gwartney-Gobbs (1989) supporting the relationship between large cohort size and increased rates of homicide, suicide and political alienation. These researchers use various statistical techniques, including the implementation of the APC models, in order to single out the cohort size effect. Most of the research supports Easterlin's claims and conclusions.

Easterlin presents evidence of the relationship between large cohort size and homicide victimization among youth. He claims the strong contribution of compositional changes in the population, namely, during the 1960s, as Baby Boomers entered adolescence, to the homicide. Indeed, homicide rates of 15-24 year old males (controlled for age) grew in the period from the late 1960s to the late 1970s.

Easterlin also shows evidence of relative cohort size impacts on suicide rates. Among males 15-24 years old, suicide rates declined during the 1950s and rose again

during the 1960s and 1970s, corresponding with the decline and rise of the relative number of young adults. Conversely, suicide rates among 45-54 year old males fell during the 1960s and 1970s as their proportion in the population fell.

Finally, short-term fluctuations in fertility related to man-made or natural disasters have their own specific consequences. In the first place, it is worth noting that some disasters do not cause any changes in fertility dynamics. The idea that they do is a popular myth, sometimes reinforced by incorrect media report. Two such examples are brought up by Rogers, St. John and Coleman (2005) regarding incorrect reports of claimed impacts of the power blackouts in New York in 1965 and in the Northeastern US in 2003 on birth rates. Claims of the "blackout baby-boom effect" were disproven by careful analyses.

In cases where disasters have impacted fertility, these impacts have been very different across cases in regard to scale, timing, and spatial distribution. Empirical study of the impact of the Oklahoma City bombing on fertility led to three major findings:

"First, the immediate effect of the bombing appeared in and around the Oklahoma City area, not elsewhere…Second, the overall persistence of the effect, as well as the magnitude of the effect, was primarily in Oklahoma County… Third, the effect of the bombing can be observed in the three largest metropolitan counties…" (Rogers, St. John and Coleman, 2005, 690).

It is interesting that a significant increase in fertility (measured by birth rates and General Fertility Rate [GFR] was discovered in Tulsa County, an area spatially distant from the bombing site. The scholars note that while increase in GFRs in three of the six Oklahoma City counties (Oklahoma, Cleveland and Pottawattami) dampened somewhat after the first year, in Oklahoma County, where the bombing occurred, the effect was the most sustained.

These trends in short-term fertility fluctuations are not universal across all man-made disasters. Scholars attribute these fertility outcomes to the unique features of the Oklahoma City bombing—"the highly visible and widely reported deaths of babies, the

immediate capture of the perpetrator, the apparently small number of individuals who were involved in plotting the bombing and the focused and local nature of the damage…" (Rogers, St. John, Coleman, 2005, 691). These features allow for fertility predictions based on one (or a combination) of the three theories: replacement/insurance, community influence and terror management.

The tragedy of September 11, 2001 ("9/11") contrasts with the Oklahoma City bombing in most of the mentioned features. Reports on the death of babies were less emphasized, the organizer of the attack was not captured until a decade later, and a large faction of Al-Qaeda was involved in the plot. Correspondingly, research of the event's impact on fertility dynamics was found to be distinctive in some ways from the effects after the Oklahoma City bombing (Ruther 2010). According to these scholars, only coefficients of fertility change for New York City (Manhattan), NY and Ocean County, NJ, were significant. None of the other New York City boroughs (that could be also strongly affected by the attack in regard to victims involved) exhibited an increase in births in the years following the attack; only one of the four closest counties in NJ (Bergen County) was saw an increase in births. The possibility of a linear relationship between the proximity of the area to the World Trade Center was also disproven. It is also worth mentioning that fertility response in Manhattan was not only the most immediate but also the most lasting. In some outlying counties (especially those in NJ), there were certain positive hikes in GFR in the first full year during which a response could emerge, but within the next year GFR declined.

There is also an indication of diverse fertility responses to natural disasters as well. For instance, Evans, Hu and Zhao (2008), in their analysis of hurricane and storm warnings on fertility in US, found a crucial role for warning severity. While low-level weather advisories result in increased fertility, with each higher level of warning this effect diminishes; and the most severe storm advisories even reverse this sign of effect, resulting in decreased fertility.

3.2. Analytical Overview of the Existing Demographic Theories of Fertility

The demographic theory of fertility is a fragmented field. Most recently, Greenhalgh (1994), Van de Kaa (1995) and de Bruijn (2006) have attempted to provide a typology and analysis of demographic theories of fertility. I combine these scholars' approaches in classifying demographic theories for the purpose of their analysis. The major goal of this analysis is to determine if any of the existing demographic theories is suitable for explaining short-term fluctuations in fertility impacted by societal instabilities. Correspondingly, each theory is analyzed from the perspective of matching the following criteria: ability to explain short-term fluctuations in fertility, ability to clearly establish macro-micro links, being applicable to period effects on fertility and ability to explain fertility dynamics at the periods of rapid and unexpected change.

Classic Transition Theory

A version of modernization theory, classic transition theory explains the evolution in demographic reproduction from a high fertility and high mortality state to one of low fertility and low mortality via an intermediate stage typified by mortality decline and lingering high fertility. Classical transition theory emphasizes social and economic forces as facilitating this change and assumes that the processes it describes occur in similar ways across different eras and cultures.

It views social change as unidirectional and progressive, assuming societies move irreversibly toward greater homogeneity. Greenhalgh (1994, 10) formulates the main premises of demographic transition theory that are shared by many proponents of that theory (see Van de Kaa (1995) and de Bruijn (2006)) in regard to fertility as the following:

1. Fertility transition is a phased process. Societies begin at the primitive or traditional stage and end at the advanced or modern stage.

The concept of demographic transition has four stages, including the pre-industrial stage, the transition stage, the industrial stage, and the post-industrial stage. The pre-industrial stage is characterized by a stable population, with high death rates, due to low standard of living, and high birth rates due to the need to compensate for deaths. The second stage is the transition stage, which is when the population begins to increase due to continued high birth rates and declining death rates as a result of an increase in the standard of living. The industrial stage follows and is characterized by continued population increase despite the declining birth rates and low death rates, which result from increased standard of living and changes in social views. The final stage is the post-industrial stage, which is when the human population stabilizes, due to low birth rates and low death rates.

2. Fertility transition is a homogenizing process that produces tendencies toward convergence among societies.

Most of demographic transition theory proponents claim that in the long-run all countries that undergo the transition will have the similar fertility rates, with Total Fertility Rate approximating 2.1-2.2, or falling below it.

3. Fertility transition is a process of Europeanization (or Americanization).

Demographic transition is an inductive theory that started with the empirical based analysis of how Western populations have changed over time. Unlike many other theories on population, the demographic transition theory was based on the actual experience of the European countries and the US. This theory is in fact a generalization

of the historical sequence and pattern of changes in the vital rates typical for Europe and, to a certain extent, of the US.

4. Fertility transition is an irreversible process. Once started, it cannot be stopped.

This claim implies there is no way fertility rates will never return to the pre-transitional level, though proponents of the theory don't rule out certain fluctuations in the fertility rates (including slight increase) after the completion of the demographic transition.

5. Fertility transition is a progressive process; in the long run, it is desirable.

The progressive tendencies is seen in the mutual adjustment of reproductive function and self-actualization of women as well as potential for investing more time and financial resources in upbringing, health and education of the children.

6. Fertility transition is a lengthy process.

When applied to the demographic developments in Europe, it takes up to two centuries; whereas in some modern societies (e.g. four "economic tigers" of South East Asia-South Korea, Hong Kong, Taiwan and Singapore) demographic transition lasted for decades.

The pioneers of what has become demographic transition theory, Thomson (2002), Davis (1986), Kirk (1996) and Notestein (1945, 1983), initially attempted to provide an explanation of the dynamics of European demographic developments for the period from the early 19th century to the early 20th century. To explain these changes, they employ the concept of social change. Though they use various definitions and their theories do differ in certain elements, these scholars still unanimously explain the shift from the mode of demographic transition typified with high mortality and high fertility to the one with low mortality and low fertility in terms of such parameters of social change

as progress, industrial development, arrival of "technological civilization," and other characteristics of the modernization process. All of these scholars, to varying degrees, refer to biological/technological, structural, and cultural determinants of civilization change in defining the causes of demographic dynamics. Scholars have further refined all of these three components by introducing the measurable concepts of improved sanitation and health services, industrialization, innovative regulation and institutional arrangements. So, it is clear that the major scope in which demographic transition theory could be applied, are grand shifts that are of long-term, such as industrialization, urbanization, etc.

All of the pioneers of the demographic transition approach adopt the idea of a three-stage process of transition sketched by the forefather of this school of thought, Landry (1982). The first stage is typified by high fertility and high mortality, the second by declining mortality with fertility remaining high, and the third with declines in fertility approximating the already low mortality level. Scholars generally explain the first change of the demographic transition process, declining mortality, by the advances of the industrial revolution and modernization and, more specifically and most importantly, by improved sanitation and advances in health care and science. The latter led to a dramatic decline in epidemiological diseases, the major cause of death in Europe in the 17th and 18th centuries. Notestein, for instance, writes: "In short, the whole process of modernization in Europe and Europe overseas brought rising levels of living, new controls over diseases, and reduced mortality" (1945, 37-57).

The next major shift within the demographic transition is the decline of fertility following the reduction of mortality. According to the proponents of this explanatory claim, this phase is much less responsive to modernization and is largely attributable to the collapse of ideational and normative systems that supported high fertility. Davis (1986, 54), for instance, specifies the mechanism by which adjustment of fertility to the new situation was achieved:

> *"The advanced countries have reached these low rates by pushing the principle underlying human social organization -- reliance on a division of labor based on acquired skills -- to its limit…The destiny of the child (and hence of the parent), has come to depend on the child's training and education. The social structure that generates this kind of adaptation is characterized by social mobility, planned innovation, formal schooling, urbanization, separation of home and workplace, and bureaucracy."*

According to Davis, normative control plays a huge role in reducing fertility in this new type of environment. He writes that normative controls regulating family and procreative behavior "…tend to break down when people live in large cities, strive for social mobility, work in an impersonal environment, receive income as individuals rather than as family members, and acquire formal education in schools beyond parental control" (Davis 1986, 60).

Kirk (1996), among other scholars, notes that demographic transition was initially designed to serve as an explanation of demographic developments of a historically and geographically defined scope (Europe from the 18th to the 20th century), rather than as a universal theory with predictive power. However, as noted by de Bruijn (2006, 552), later scholars apply the principles of historic demographic transitions to contemporary situations in such a way that any country or nation may be placed on the evolutionary track of modernization and mortality and fertility decline. This last version of the demographic transition theory is very arguable and thus it is problematic to apply premises of this theory to the latest developments including short-term fluctuations of fertility impacted by the societal instabilities.

As mentioned above, mortality decline is considered to be a prerequisite for changes in fertility by the proponents of demographic transition theory. The focus of this explanatory claim and corresponding empirical research has largely shifted specifically toward the relationship between infant mortality decline and fertility reduction. Infant mortality, in Notestein's words, is an indicator of the sanitation and the quality of health services (1983, 345-360). In that sense, infant mortality is an indicator of a core concept of the modernization process. This proposed link also makes sense at the level of

individual/family decision-making. In van de Kaa's words, "if it is assumed that people's desired family size reflects a specific intended number of surviving children, rather than a certain number of births, they can only reduce their fertility once the chances of survival of the children born have improved" (1995, 405).

De Kaa (1995, 407) outlines four formulated hypotheses regarding the mechanism of fertility response to a decline of infant mortality. They are:

1. *Child survival hypothesis.* If couples wish to have a certain number of surviving children, too large a number of surviving children could alert them to the fact that fewer births are needed to ensure the desired number of survivors. In this approach, it is the excess of living children which triggers a reaction.

2. *Child replacement hypothesis.* As long as mortality is high, many families will experience the death or one or more children. They will try to "replace" these children with further births. As mortality falls, replacement will no longer be necessary. Hence, fertility will decline.

3. *Reduction in uncertainty hypothesis.* Under conditions of high mortality, families must anticipate the loss of one or more children before they become adults. Couples guard against having no adult children to care for them in their old age by producing a larger number of children than they desire as surviving children. They insure themselves against future losses by "hoarding." As mortality declines, the uncertainties involved are reduced. Hence fertility can decline.

4. *Insurance against widowhood hypothesis.* Where child mortality prevails, men and women are also at high risk of being widowed at a relatively young age. This may lead to great economic hardship and, particularly for women, can endanger survival if a woman has no children to help her to maintain a reasonable level of living. Women are, therefore, interested in having children as soon as possible after marriage, and have them in quick succession as insurance against

becoming a destitute widow. Once mortality declines, the risks and uncertainties diminish. Hence fertility can decline.

The dominating premise of the demographic transition theory of linking fertility change with mortality decline (especially with infant mortality) makes it inapplicable to researching the impact of societal instabilities on short-term fluctuations of fertility since the latter happen with little or no relation to mortality decline.

Overall, demographic transition theory provides one of the first theoretical explanations of long-range fertility decline. Demographic transition theory has been criticized for the assumption of universality of demographic mechanism and processes, without being sensitive to parochial cultural and institutional specifics (that are important for studying the impact of societal instabilities on fertility). It fails to explain short-term demographic changes unrelated to changes in mortality. It also does not even attempt to explain population dynamics within the third phase of demographic transition. Thus, employing transition theory premises to explain short-term fluctuations of fertility in a given research study is not appropriate.

Net Wealth-Flow Theory

The first theory in a family of post-classical transition theories is the one of net wealth-flows. It is often times called a restatement of a demographic transition theory. Its author and major proponent, John Caldwell researched demographic trends mostly in the less developed and historical societies in the mid-1970s. By that time the huge opportunities to study demographic transitions had emerged, one of them being an ability to undertake large scale sociological experiments. The restatement of the demographic transition theory by Caldwell involved both revision of the causal mechanism originally specified by the theory's proponents and anchoring demographic transition to the historical and modern developing countries.

The core explanation of Caldwell's theory is that fertility behavior is determined by the direction of net intergenerational wealth flows. The scholar specifies two basic

modes of production: familial and non-familial. The first mode is typified by the net wealth flows from younger to older generation, and thus there is no economic gain in restricting fertility. In non-familial modes wealth flows take the opposite direction and this it is economically rational to reduce births. Caldwell places a special emphasis on the role of norms in the reversal of the intergenerational wealth flows. He refers to what he calls "social motivations" (1976, 322) that implies the incentive of following the social norms of children getting greater education. The latter increases the cost of children and reduces the labor benefits to parents contributing the reversal of the intergenerational wealth flows. Moreover, in regard to justifying the rationality of keeping high level of fertility in familial mode of production, Caldwell goes even further. He states that long history of familial mode of production contains not only agrarian but also hunting and gathering societies. Caldwell claims that the latter could have been "typified by wealth flows from the younger to the older generation, without a specific child-parent flow, and fertility may have been valuable more in terms of numbers and security then in terms of production before the external imposition favoured highly controlled fertility" (1981, 8).

The role of family nucleation in the reversal of the direction of wealth flow is an important part of Caldwell's restatement of the demographic transition theory. For the "great divide", a metaphor used by a scholar to describe the reversal of the intergenerational wealth flow, the family has to be largely nucleated both emotionally and economically. Caldwell stresses that "a fair degree of emotional nucleation is needed for economic nucleation" (1976, 355). And, most importantly, "considerable amounts of both are required before parents are free to indulge in ever greater expenditures on their children" (1976, 355) that actually means the complete reversal of intergenerational wealth flows. Caldwell specifically emphasizes the importance of the economy of the nuclear family to be largely isolated from that of an extended family for the occurrence of the "great divide". This process implies the change of economic balance in the family so that the parents are fully in charge of their own family economy.

Caldwell's basic premise is that familial revolution does not necessarily coincide with economic modernization. Accordingly, Caldwell states that in some countries economic modernization is not accompanied by certain types of social change (including family nucleation): this explains sustained high fertility despite the chance of urbanization and proportion of nonagricultural production. The opposite is also true – familial revolution could precede economic modernization. In that case corresponding reversal of intergenerational wealth flow leads to a fertility decline regardless of economic modernization advance. This explains phenomena that demographic transition theory failed to account for –for instance, steep declines in fertility in mostly agricultural Bulgaria between World Wars I and II or sustained fertility in the urban areas of Egypt and Far East in the 1950s.

Net wealth-flow theory's major achievement is the restatement of demographic transition theory in a way that provides explanations for this demographic phenomenon that transition theory failed to come with. The theory is mostly applicable to the explanation of grand shifts in demographic behavior, such as transition from familial to a non-familial mode of production, or the "great divide" leading to the nucleation of family, or the Westernization. (The inseparability of this theory with explanations of grand social changes is stressed by van de Kaa: "The proponents of the wealth flow concept have at the same time embedded it so intricately in the overall process of social change, that its own explanatory power is seriously impaired" (1995, 418)). Therefore, net wealth-flow theory cannot be used in explaining short-term fluctuations in fertility.

The net wealth flow theory has also attempted to explain the recent fertility changes, too, however, mostly in modern developing countries. Therefore, it is problematic to apply it to explaining current demographic changes in developed countries, including the ones affected by societal instabilities.

Microeconomic Theory

General Approach. Chicago-Columbia School

The next post-classic transition theory is microeconomic. It was first formulated in 1957 by Leibenstein, and later advanced by Becker. The micro-economic approach is often referred to as a "demand theory," "The Chicago School model," "New Home Economics," and "New Household Economics." As mentioned above, the major premise of the demographic transition theory is the impact of society's modernization on changing mortality and fertility rates. The early explanations of the demographic transition emphasize the role of macro-economic parameters in affecting these processes. Among these parameters are the levels of industrialization and urbanization; according to the transition theory, they are the very reasons for spreading traditional values contributing to the reduction of fertility.

The microeconomic approach retains the central premise of the transition theory that reduced demand for children is the major driving force for the demographic transition. However, it shifts the focus from macroeconomic parameters to the decision-making on fertility at a micro-level unit of a family. The microeconomic theory of fertility is a branch of the theory of consumer choice. The key assumption of that theory is that family members are rational, self-interested actors, maximizing their behavior in all decision-making situations (Becker 1960). This kind of behavior is the same for making decisions about purchasing a house or giving birth to an "additional" child (the term used for defining children in this approach is (not accidentally) the one of "consumer durables"). The key unit where this decision-making process takes place is the household; and the "household production function" approach links fertility decision to other household processes including consumption.

As noted by Pollak and Watkins (1993, 474), the microeconomic approach is an elaboration on a simple and restrictive model called the "household consumption model" that was further extended and generalized as the "household production model." The household consumption model emphasizes deriving utility from consuming market goods upon purchasing them. In that sense this model employs consumer behavior theory. The latter uses such explanatory variables as a given household's resources, prices of all

goods, and budget constraints that constitute the boundaries of the purchasing opportunities. Thus, “constraints” and “opportunities” refer to the set of various alternatives available to the household.

Microeconomic theory states that what is maximized by the members of a family is well-being (i.e. utility); and the immediate sources for it are produced in the household by its members by combining their time with market goods and services. These immediate sources are called “household commodities.” Becker defines them and their sources in the following way: “These commodities cannot be purchased in the marketplace but are produced as well as consumed by households using market purchases, own time, and various environmental inputs. These commodities include children, prestige and esteem, health, altruism, envy, and pleasures of the senses, and are much smaller (sic) than the number of goods consumed” (Becker, 1991). For example, health is a function of hygiene, and clothes need to be clean. Cleanliness requires effort and time from household members, as well as investment in the market purchases of laundry supplies. This kind of activity represents the “household production function” for such a “household commodity” as health.

Families are supposed to aim to maximize utility (i.e. well being), while limited by two constraints: available financial resources and available time. These constraints determine “opportunities” (including children). The maximization of total utility by the household by using the constrained total resources leads to the utility-maximization equilibrium, such that “no reallocation of available resources would increase total utility” (Robinson 1997, 51).

The most important assumption of the microeconomic theory of fertility is that of fixed preferences that are constant across time and social groups. Only change in opportunities (and related constraints) determines change in producing different “commodities” including children. As Pollak and Watkins put it: “Individuals are assumed to be an ordering - complete, reflexive and transitive. In the household consumption model, preferences are generally assumed to be monotonic, convex, and

continuous as well. It can be shown that such preferences are 'representable' by a real-valued function in the sense that numbers can be assigned to collections ('bundles,' 'vectors') of goods in such a way that higher numerical values are assigned to collections that rank higher in the individual's preference ordering. Economists call a function that represents an individual's preference ordering 'a utility function'. Thus, when economists speak of 'utility maximizing behavior', they mean only that the individual when faced with a set of opportunities chooses from that opportunity set the 'best' (i.e. highest ranking) alternative, where the ranking is that specified by the individual's preference ordering" (Pollak and Watkins 1993, 480).

Several factors could affect households' allocation of resources. First, households can increase their financial resources; second, they can increase effective time for household production by investing in their human capital; and third, they can introduce technological advances that will improve household production efficiency. Because resources are assumed to be optimally allocated, one can predict changes in "opportunities" and "constraints" (money, time and technology). For instance, the increase in wages will result in the increase in demand for all household commodities, a substitution in consumption that will cause the reduction of the intake of time-intensive household commodities, and in the replacement of labor-intensive methods with good-intensive methods in household production. The important point of this model is that these assumptions about the given relationships hold only when family allocations are in equilibrium, and the family is operating in an optimal (resource allocation) manner.

Now we turn to the specification of the place of children among other "commodities" in a microeconomic model. As mentioned above, the household production function is aimed at maximizing its own utility with the help of internal and purchased external resources and the use of "household technology." That means that the "demand" for children is actually a demand by parents for the flow of services that children produce over time. Consumption of these child services generates pleasure or "utility" for parents (the household). The child-services (and other services) are

produced within the household using the time labor of the household members and inputs purchased from outside the household, and employ the "technology possessed by the household for such production" (Robinson 1997, 63-64). Leibenstein (1957) distinguishes three types of utility that parents receive from having children: 1) consumption utility (meaning non-economic benefits, such as emotional ones); 2) labor productivity utility; 3) old age security utility. Children thus are treated as a special type of commodity that produces a flow of services to parents which determines their utility for the latter. The volume of the flow of services from the children could be larger or smaller, depending on the underlying technology.

The important element in the microeconomic theory of fertility is relating allocation of time to the actual or potential earnings of the wife. This theory places special emphasis on the increasing importance of women's work outside the home and its competition with child-rearing for the wife's time. As noted by Murphy (1992, 236), "since women undertake the greater burden of childbearing, the costs of childbearing, especially in terms of earnings foregone while they are looking after children and future labour market prospects, fall most heavily on them." Since these costs are assumed to be greatest for those women in highly paid jobs, the theory predicts a strongly negative relationship between wages of wives and the number of children. This logic comprises the core of the microeconomic theory's explanation of the declining fertility accompanying the increase in women's participation in labor force. Also, as Cleland and Wilson noted, the "emphasis placed by neo-classical household economists on the value of mother's time and its relationship to the cost of children, has strengthened the long-held view that the social status and economic independence of women may be an important intervening factor between economic modernization and fertility decline" (1987, 8).

Becker later added two major theoretical points to the original microeconomic model. The first one was bringing other members of the family by: 1) adding "altruism" as a source of utility to the decision-maker, thus bringing meaning to the utility of other

members; 2) extending the decision-making process to be "dynastic," meaning that present decision-making acts on behalf of future generations by adding bequests and investments to the current expenditures.

The second point Becker introduced to the model of utility maximization is the concept of "child quality." The reason for that innovation was what appeared to be an inverse relationship between income and fertility: while income rose, family size declined during the European Demographic Transition. This appeared to be in conflict with classic microeconomic theory's premise of positive income elasticity of demand for children. Becker solves that problem by elaborating on his theory's thesis that the demand is not for children per se but for child-services; while total child services equals number of children times an average quality per child, one way to increase total child services is to contribute to their quality. So, there are two ways, Becker states, to increase prospective child-services: (1) have more children; or (2) increase children's quality (Becker and Lewis, 1973; Becker and Tomes, 1976; Becker, 1991). And they are not simple trade-offs.

Generally, as evident from the above, this variant of micro-economic theory has several properties that are essential for the explanation of the instability's impact on short-term fluctuations in fertility. First, it could be applicable to short-term fluctuations of fertility, unlike demographic transition and net wealth flow theories, since such factors as income, or demand for children services could change many times within any of the mode of production or within any grand scale process like modernization. Second, the theory provides macro-micro connections linking macro-societal changes and fertility outcomes with family based decision-making on this demographic process. However, the theory is not applicable to rapid and sudden changes at the times of unexpected social change; it holds only at the state of relative equilibrium. Therefore, its ability to be used for the explanation of societal instability's impact on fertility is limited.

R. Easterlin's Theory

Easterlin (1974) builds on the classic microeconomic theory of fertility; however, his own theoretical advance can be distinguished from it in at least three ways. First, Easterlin develops the concept of a "births production function" and relates it to the demand for children. Second, he introduces "endogenous preferences" into the fertility model and develops a theory of "taste formation." Third, he allows for unintentiousness in the utility-maximizing process which is reflected in his concept of "unperceived jointness."

The microeconomic model of fertility emphasizes the demand part of the decision-making process of fertility. The other factor that also is a part of the "optimal solution" – the birth production function, or output of children, or, as Schultz calls it, a "supply" factor (Schultz 1976, 89-124) is not adequately addressed. Easterlin fills that gap, elaborating on the concept of potential production of children (i.e. supply factor). He defines that concept as "the number of surviving children a household would have if fertility were not deliberately limited" (Easterlin 1974, 55). The key factors that determine the potential output of children are natural fertility and probability of infant survival. Among the factors that, in turn, affect these two variables, are health, quality of nutrition and medical care. The key point in developing the "supply" factor is that it plays a role in the utility-maximizing decision on fertility: it is number of children surviving to adulthood that parents aim for, not just number of children per se. Thus there is an implication for the model: the information about, say, a drop in infant mortality could alter the demand for giving birth to a certain number of children (in that example, the result could be a reduction of planned births).

The second distinction of Easterlin's approach, as mentioned, is the incorporation of "endogenous tastes" (e.g. preferences) into the fertility decision-making model. As stated before, the classic microeconomic mode assumes fixed preferences, both across time and households. The differences in fertility decisions are explained only by changes in opportunities. Easterlin recognized the incompleteness of such a model and introduces

what he calls “interdependent preferences” – both for fertility and consumption. Two versions of interdependent preferences models are introduced.

The first version, the “socialization” model, assumes that family’s preferences depend on the average consumption and family size of all families in the previous cohort. This specification could be modified by limiting these families to a certain socioeconomic status or tracing preference formation to the more distant past. The second version, the “intrafamily” model, assumes that each family’s preferences are determined by the consumption and family size the husband and wife experienced during their childhood and adolescence.

The main difference between these two versions is that while “socialization” does not imply the existence of systematic differences within a group of families with the same socioeconomic status, education and religion, the “intrafamily” version predicts heterogeneity within such a group because of the differences in the consumption and family size experienced during childhood and adolescence. The interdependent preferences are formalized by postulating that each family’s tastes depend on “normal levels” of commodity consumption and family size, with “normal levels” interpreted as “aspiration levels” or “bliss points” and assuming their relation to the past consumption and family size decisions of other families.

If preferences are taken into account, fertility decline in developed countries could be explained not by demand for higher child-quality services but by the fact that “...shifts in the budget constraint favoring children are offset by an endogenous preference mechanism functioning as a lagged result of income growth that disfavors children” (Easterlin, Pollak and Wachter, 1980, 116-117). As a source for taste change, the increase in non-labor income is mentioned: in the relative income model, aspirations could be altered by an increase of income.

Easterlin’s third contribution to fertility theory is the introduction of the concept of “unperceived jointness.” Classic microeconomic approach was often criticized for assuming that a family has complete information about the factors affecting their optimal

decision-making on fertility. Easterlin and his associates address this criticism by introducing the concept of "unperceived jointness," which describes the situation when the family does not recognize the relationship between its consumption pattern and its fertility and infant mortality. For instance, increases in income could lead to better nutrition which would also increase fecundity. The resulting increase of fertility would not stem from conscious utility maximization; rather, it will be a case of an unperceived jointness. Better nutrition could also lead to decreases in infant mortality. As mentioned above, in the discussion of "supply" of children, this could be a factor in changing the demand for actual numbers of births. Yet this would hardly be a part of conscious maximization, and improved nutrition would be an illustration of unperceived jointness of fertility change. Easterlin stresses that unperceived jointness does not imply complete ignorance. Actually, unperceived jointness would be consistent with any kind of knowledge except a perfect one.

Indeed, Easterlin has significantly advanced the original microeconomic theory in several ways (including introduction of the non-economic predictors of fertility). Still even this advanced version of a microeconomic theory has one significant trait that prevents from applying it to investigating the instability's impact on fertility swings: Easterlin traces formation of fertility intentions to the periods of childhood and adolescence, while for researching sudden instabilities' impact on fertility one has to look at the change of such attitudes at childbearing years.

Cultural Theory

Cultural theory has largely appeared as an attempt to address the major critical points of the three above mentioned theories that are largely based on rational choice assumptions. Much of cultural theory was constructed inductively, basing its premises on empirical findings. Cultural theory is about innovation, diffusion and ideational / normative changes that impact fertility. In a narrow sense the theory includes the development of birth control means, and the spread of its use and attitudes toward these

practices. The broader concept of cultural theory also includes the greater scope of ideational changes that are ultimately related to the formation of a new level of a desired fertility as well as new attitudes toward new patterns of fertility behavior including calendar of births and types and timing of marriages that stem from employing practices of birth control. Both narrow and broad meanings of cultural theory premises are strongly interrelated.

Explaining fertility changes by cultural properties such as innovation, diffusion and ideational shifts has meant breaking away from major premises of transition, wealth-flow and microeconomic theories. In other words, postulating above mentioned cultural properties as the major causes of fertility dynamics implies demonstrating the weaker impact of the socioeconomic variables emphasized by the preceding three theories, on fertility process. These socioeconomic variables include levels of modernization, urbanization and infant mortality, education, female participation in labor force, shares of familial and non-familial modes of production and security motives.

Research and corresponding findings in this area, as noted by de Kaa (1995, 420) was conducted in three various contexts. The first one is the historical decline of fertility in Europe, the second one is in contemporary developing countries and the third is related to the Second Demographic Transition in modern advanced countries. Let us discuss the research conducted in the third context.

The strong ideational shifts accountable for changes in fertility dynamics are not limited to just use of contraception. This claim is strongly supported by the scholars in regard to the third context, the Second Demographic Transition (SDT). A major premise of this theory, as well known, is the explanation of changes in demographic behavior by huge shifts in the prevailing societal values. Van de Kaa emphasizes these new values of the “postmodern epoch.” Among them he mentions "...the overwhelming preoccupation with self-fulfillment, personal freedom of choice, personal development and lifestyle, and emancipation..." (de Kaa, 1996, 425). The European Value Survey, conducted in the Northern, Eastern and Southern parts of the continent, has

confirmed connection between new models of demographic behavior and such values conducive to Second Demographic Transition theory as stressing individual autonomy, weaker civil morality, world orientation, and tolerance toward minorities, self-fulfillment and other postmaterialist values (Surkyn and Lesthaeghe, 2004, 54).

Van de Kaa stresses relationship of these values' emergence with social, economic and structural conditions of societies: "Rising incomes and the economic and political security which democratic welfare states offer their populations has helped trigger a 'silent' revolution", a shift in a 'Maslovian' post-materialism direction where an individual's sexual preferences are accepted for what they are, and decisions on cohabitation, divorce, abortion, sterilization and voluntarily childlessness are largely left to the discretion of the individuals and couples involved" (1996, 425). According to the SDT theory, there are following manifestations of demographic behavior conducive with acceptance of the above mentioned values and norms: increase in the numbers of consensual unions; increase in proportions of non-marital childbearing with an accompanying increase in the mean age at childbearing outside marriage; decline of induced abortions and increase in use of modern contraception; change in the position and shape of distribution of birth by age including shift in the share of teenage fertility; increase of the mean age of legal marriage, mean age at giving first birth, and mean age of maternity.

Cultural theory had illuminated the important variables in fertility decision-making. However, as even cultural theory proponents recognize, large portions of it is not a theory as such. The role of culture is defined, the mechanism of spreading out of norms and values (diffusion) is specified, but the mechanism and path of culture’s impact on fertility is not discovered in full, especially when it comes to short-term swings. (A good example is the recent trend of reversing postponing first births in some European countries (Rykova, 2006, 60)). Most of the theory deals with grand long-term social changes (e.g. the spread of post-materialistic values, or demographic transitions) and therefore is not suitable for using in the study of short-term fertility fluctuations.

Institutional Theory

As well as cultural, the institutional theory of fertility was brought to life largely as a response to shortcomings and unsupported claims of "universality" of classic transition theory and its post-classic versions. It emphasizes, as cultural theory does, the contextual, often times situational character of fertility decision-making. Institutional theory, however, introduced several explanatory claims of its own. First, the theory proponents elaborated on the very concept of institutions and singled out the ones that are fertility related. Second, it explained demographic change in terms of path-dependency that is closely related to the uniqueness of institutional contexts for any given country or groups of counties. And, third, it came up with the explanation of the mechanism of how institutional settings are perceived by individuals and impact their fertility decision-making.

Let us start with the elaborations on the first point. Institutions that could be used as determinants or predictors of fertility behavior, are not, as one of the main proponents of institutional theory, McNicoll, puts it, "...tangible public entities like prisons or hospitals" but "clusters of behavioral rules governing (or, to put it more neutrally, regularities describing) human actions and relationships in recurrent situations" (McNicoll 1994, 4-5). The rules could be written or unwritten but it is known that there are sanctions for violating them coming from the authority or self-imposed.

McNicoll also emphasizes the multifaceted character of institutions. The latter have both material and cultural antecedents, with the latter sharing with culture such properties as symbol and belief. Social institutions impacting fertility plausibly have this multifaceted nature. This trait could be illustrated by Guyer's elaboration on the institution strongly related to fertility, the sexual division of labor. She writes: "The sexual division of labor is, like all fundamental institutions, multifaceted. Within any particular society, it is an integral part of the ideological system, economic organization, daily family life, and often the political structure as well... In any one case all these dimensions reinforce each other, so that the current structure seems both heavily

overdetermined and ultimately mysterious since it is difficult to assign weight to one factor over another" (Guyer 1980, 356). Likewise, Migdal (1988, 27) emphasizes integration of material and moral in the establishing systems of social control where tangible rewards and sanctions are combined with symbolic ones.

Acknowledging that institutions are not neatly classifiable, McNicoll (1984, 11) suggests following enumeration of some supposedly fertility-related institutions: (1) family and local community, (2) family and property law and the local dimension of public administration; (3) family and the stratification system and the mobility paths it accommodates; and (4) family and the labor market. In addition, the scholar lists the institutional context of state-individual relations since governments attempt to influence fertility in a form of a public policy. Mason (1984, 77) recommends emphasizing macro properties of such institutions as mass education, women's legal status and systems of gender stratification, and recommends concentrating on the aggregate-level analyses.

The major reason for the various outcomes was plausibly the differences in the countries' institutional contexts, most importantly, in political systems (see Klupt, 2008). According to McNicoll (1993, 9), in totalitarian states the expansion of power at the expense of other social institutions was virtually complete. That allowed Chinese Communist party local communities to ostracize and punish those in the communities and enterprises not complying with the party line and refusing to limit births with one child. India's democratic institutional context along with being a multiconfessional country prevented the success and durability of authoritarian and administrative population policy.

The second, arguably, the most important explanatory claim of the institutional theory is the one employing the concept of path-dependency. The latter implies the partial dependence of the emerging institutions, or "clusters of behavioral rules," on the way previous choices and developments were made. These previous choices stemmed from behavior and are impacted by both previous history and various expectations of society.

These newly established institutions determine the choices to come: their array is largely dependent on what kind of institutions was already present at the previous "path."

The key word in the institutional theory's path-dependency approach is "uniqueness." As van de Kaa (1996, 427) puts it: "The institutional endowments of a society will reflect its unique history; hence, the demographic response of societies to changes in economic circumstances, in the probabilities of survival, in security risks of families and individuals, in sex roles, or in the policies pursued by their government, will in some measure be unique." The theory's emphasis on the uniqueness of demographic developments due to the specifics of institutions relevant to fertility behavior challenges the universality of the wealth-flow, microeconomic and especially demographic transition theories. However, institutional theory's premises are not totally incompatible with the latter. They rather add up regional and/or national flavor to the commonalities of demographic developments in various countries that are emphasized, in particular, by the demographic transition theory.

As mentioned above, a path-dependency based institutional approach emphasizes uniqueness of a given continent's, country's or region's impact on demographic development, in opposite to the universalistic assumptions of demographic transition theories. However, the work of Rindfuss, Guzzo and Morgan (2003, 411-438), written in the vein of institutional theory, offers a somewhat distinctive approach. This work takes into account not only the uniqueness of countries' institutions in regard to their impact on fertility but also commonalities in countries' institutional settings that allow for specifying the patterns of institutional settings for the various groups of countries and determining corresponding demographic responses. In authors' words, they "…look at the interplay between the uniqueness of countries (or individuals) and their response to similar forces and constraints" (Rindfuss et al, 2003, 413).

The authors have examined the changing institutional context of low fertility in a set of 22 countries that had achieved moderate or low levels of fertility by the 1960s. The authors specifically looked at two major institutional incompatibilities that supposedly

play a great role in fertility swings: the ones between the mother and the worker roles and between marriage and child-rearing. Rindfuss et al single out institutional constraints that affect existence and degree of reducing both incompatibilities. They include religious issues, labor market issues, educational policies and opportunities, legal issues and familial context.

All of these institutional contexts vary across countries. This is very much evident when it comes to institutions accounting for the reduction of the first type of incompatibility, the one between the worker and mother roles. The institution that Rindfuss et. al believe is of a paramount importance for reducing these roles incompatibility is child care. The authors conceptualize this institution, specifying availability, acceptability, accessibility, quality and cost of child care, and demonstrate various patterns of each across groups of the countries.

For instance, Rindfuss et al single out Norway as a "…good example where the state has been actively making child care more widely available" and mention that while US government plays a relatively minor role in the provision of child care services, it "provides an example of business and volunteer organizations increasing the availability of child care (Rindfuss et al, 2003, 416).

In regard to acceptability (that refers to the degree of negative or positive attitude toward the use of child care within a country) authors cite the huge differences between US, Germany and Japan. In the latter, typified with lowest low fertility, the great emphasis is placed on mother's responsibility to stay home with children. Married women living with their mothers-in-law consider the latter to be an acceptable provider of a child care; these very women are both more likely to work and to have more children. In West Germany in 1996, 76 percent of the adult population believed small children suffer if their mothers work, while in the US, the proportion of adult population that thinks the same way had declined from 68 percent in 1977 to 48 percent in 1991.

Rindfuss et. al touch upon a related issue of the institutional inertia related to the gap between greater involvement of women in employment and career and the degree of

attitudinal resistance toward this development. This inertia very much affects family lives including fertility rates, and strongly varies across groups of countries. Italy and Spain, for instance, are still typified with the resistance of society as a whole and particularly of men toward any deviation from women's single role as a housewife regardless of having or not having children, while in UK, West Germany and US there is less of this attitude and it mostly relates to the employment of those women having children.

As for the second type of incompatibility, the one between marriage and childbearing, Rindfuss et al focus on the very meaning of the institution of marriage in various groups of countries. That also includes the degree of acceptability of nonmarital childbearing. Authors single out three countries, Austria, Sweden and Norway that have a long history of nonmarital fertility and are typified by a relative tolerance toward it. On the other hand, in Japan not only is nonmarital childbearing rarer and less accepted, but the very concept of marriage is different: it is more than just a union between a man and a woman but also the vehicle for carrying on the parental line. In Ireland, Spain and Italy there is a strong impact of Catholic Church, according to which sexual activity and childbearing should be confined to marriage.

These differences have an impact on fertility since it affects women's decision on having a child when she for whatever reason doesn't want to get married. As Rindfuss et al put it,

> *"…if a country's normative and practical woman who desires a child but not a husband may chose to remain unmarried and childless. Under this set of scenarios, as part and parcel of the broad set of changes in the institution of marriage that swept across low fertility countries, those countries that have (or move toward) a more permissive normative structure regarding non-marital childbearing and that have fewer practical limitations against non-marital fertility are likely to both have higher TFR's and a higher proportion of all births non-marital" (Rindfuss et al, 2003, 421-422).*

Institutional theory in this very part that defines and specifies certain commonalities in the impact of institutional settings on fertility could be indirectly used

in investigating fluctuations in fertility (in cases when instabilities are related to changes in these institutional settings).

The crucial factor for the understanding of institutional theory and its potential for the explanation of short-term fluctuations at the states of societal instability is the very mechanism through which institutions affect fertility. McNicoll (1980) provides such a model in his other article. In this most developed form, the institutional theory of fertility is presented in a form of causal mechanism linking macro-level (institutions) with micro-level (individual decision-making on fertility).

Several assumptions allow for creation of a model of the macro-micro interaction, involving several intervening variables. The first assumption is that institutional forms in the society could recreate an incentive structure. The latter is defined as the one that "comprises the arrays of pressures directly or tangentially leaning on fertility" (McNicoll 1984, 443). Such pressures, according to the scholar, could be either economic incentives that work through economic returns to children; legal administrative sanctions, like marriage laws or governmental decrees; or, social pressures to conformity.

The second assumption is that a person does not experience institutional environment as a whole, but rather "as a series of domains, within each of which behavior is adaptive" (McNicoll 1984, 457). Such domains are called "segmented decision environments." It is these decision-settings that combine delineated institutional change with the decision process of a person. It is this structured part of the institutional environment that really matters for fertility behavior.

The last assumption of this model is about the individual who makes this decision (the micro-level). The institutional theory borrows the concept of "administrative man", introduced by Simon (1957) as an alternative to an "economic man" that was utilized in the microeconomic theory of fertility. In contrast to economic man, administrative man does not maximize, he rather "satisfies". Examples of such behavior, provided by McNicoll, are: satisfying such criteria as fair price, adequate profit, a given share of the market, a quiet life. The rationality of individual is bounded or segmented. A segmented

decision-making environment provides those boundaries, across which the administrative man shapes his plans for fertility behavior.

Institutional theory introduced and employed several explanatory claims of its own. First, the proponents of this theory have specified the most important institutions that make an impact on demographic process, including fertility. Second, it explained demographic change in terms of a path-dependency concept. Third, on a micro-level it utilized the model of "administrative man" and attempted to explain the mechanism of acquiring fertility behavior based on the institutional environment.

The institutional approach in its most developed form comes close to the theory construction requirement in defining the mechanism of institutions' impact on fertility. It could be definitely applied to explaining some short-term fluctuations of fertility – those impacted by instabilities related to rapid and unexpected changes in institutions. However, not all kinds of instabilities are related to changes in institutions. Also, the theory failed to provide a clear algorithm of how the intervening variable, the segmented decision-making environment, is created out of the institutional change. That leaves the possibility for the ad hoc definitions of the segmented decision-making environment and multiple interpretations of the way fertility is affected. So, though the theory provided the general model of macro-micro links, these connections are not clearly specified (discussion on it above involving segmented decision-making areas that are not clearly specified, proves that).

3.3. Model for Linking Societal Instabilities with Demographic Behavior

The analysis of demographic theories was undertaken in the previous section in order to determine which one or set of theories could be utilized for the current research. None of them, whether in original or modified form, applies, due to the fact that most of instabilities and crises are short-term. There are several reasons why existing population theories fail to explain short-term fluctuations of fertility including those related to societal instability.

Most demographic theories including demographic transition, wealth-flow, cultural and institutional, focus on changes in fertility over relatively long-term periods. While there are some attempts to understand short-term fluctuations of fertility, notably the Chicago-Columbia School of microeconomic theory (Becker 1976, 1991), these typically relate to changes in the cost-benefit equation in fertility decision-making and have been criticized as holding only in the state of equilibrium. Likewise, the Pennsylvania School of microeconomic theory (Easterlin, Pollack and Wachter 1997) traces formation of attitudes toward fertility to childhood and the early adolescent years and thus does not leave much room for the role of rapid social changes. Therefore, such theories provide little explanation of short-term fluctuations in fertility and their relation to rapid and unexpected social change.

One explanation for why there is so little work on short-term fluctuations in fertility is that existing theories have not effectively developed macro-micro links. Institutional theory, for example, may provide a macro-micro link by specifying how institutional changes shape the segmented decision-making environment that is taken into account when an individual makes a fertility decision (McNicoll 1994). However, this theory does not provide a clear algorithm for how the segmented decision-making environment is formed, and fails to predict what level and direction of fertility change occurs under the influence of any particular societal development. On the other hand, the Chicago-Columbia School of microeconomics can take certain macro-societal change (such as, for instance, technological developments) into account while explaining individual fertility decision-making but pays little attention to social, political and economic dimensions. As a consequence, the unique and often a paradoxical nature of socio-political and other societal changes that may produce short-time fluctuations remain understudied, and the process by which macro-micro level conditions influence individual fertility decision-making is largely unarticulated.

The above-mentioned shortcomings of current demographic theories in explaining short-term fluctuations of fertility can also be found in theories exploring such

fluctuations during periods of societal instability. This has led the author to a search for a more general theory that would address all of the missing points – the one that would encompass macro-micro links, be applicable to short-term fluctuations, incorporate value changes in periods of societal instability and address the specific impact of societal instability on fertility decision-making.

3.3.1. Uncertainty Reduction Theory

The theory that satisfies all of these criteria is uncertainty reduction theory (Friedman, Hechter and Kanazawa 1994). The theory starts with an assumption of a rational actor who maximizes value in his fertility decision-making. This initial general assumption shares the premise with the rational choice based microeconomic theory of fertility. The breakaway point that distinguishes uncertainty reduction theory from traditional rational choice explanations is the assumption about *what kind of value* is maximized. Uncertainty reduction theory emphasizes *universal immanent value* that rational actors seek to reduce. Decision-making under uncertainty differs from that under risk in the knowledge of probabilities of the alternative outcomes. While failure to achieve desired ends could be the case for both states -- situations of risk and situations characterized with uncertainty – in risky situations the decision-maker can judge the odds of failure, while in situations marked with uncertainty he cannot. The inability to assess the odds under situations of uncertainty dictates an actor's preference for risky situations, where judgment about probabilities of different sets of choice outcomes can be made. Thus, uncertainty reduction theory assumption could be formulated: *Actors will always desire to reduce uncertainty by converting it into a certain, even if risky, situation*.

Friedman et. al (1994, 377) claim that values exist in two fundamental varieties: *instrumental* values provide means to a wide variety of ends whereas *immanent* values are ends that are desired purely for their own sake. Because actors value uncertainty reduction as an end in itself rather than just as a means to various other ends, it is an *immanent* rather than an *instrumental* value that actors seek to reduce.

People can reduce uncertainty in two ways. The first one is to gather information that transforms uncertainty to risk for a local choice problem. The second one is to pursue global strategies designed to reduce uncertainty regarding the future courses of action. The authors of the theory point out several such global strategies. The principal ones in developed countries are stable careers, marriage and children. Most importantly, Friedman et al argue that having children reduces uncertainty because parenthood is irreversible and irrevocable. This is because, first, having children involves actors in recurrent social relations, and, second, creates an irrevocable commitment to a stream of expenditures over a long period of time.

There is a question that stems from the uncertainty-reducing character of the decision to have a child. Don't children creating new uncertainties while reducing other ones? Friedman et al. (1994, 383) list these uncertainties that could increase with parenthood: "Will the child be born healthy or with birth defects? Will it grow up to be a good child or delinquent? Will it succeed or fail in school? Will it experience major illnesses? Why would an actor interested in reducing uncertainty willingly introduce new sources of uncertainty?"

The answer to that question is a well-established cognitive bias. According to the founding of decision theorists and cognitive psychologists, people's perception of risk is biased in one predictable direction. People tend to downplay risks that they assume (justifiably or not) they are in control of; risks out of their control loom larger in their perception. For example: driving a car is objectively riskier than flying an airplane, but people subjectively tend to feel otherwise because of their feeling that while driving a car they are more in control. Uncertainty reduction theory suggests, "because parents can do so much to control their children's fate, risks and uncertainties emanating from parenthood are likely to be diminished in comparison with types of uncertainty that individuals seek to reduce through parenthood" (Friedman et al. 1994: 383).

Uncertainty reduction theory thus provides a set of hypotheses linking types of uncertainty with strategies for its reduction. Specifically, it predicts that two categories of

individuals are more likely than others to seek parenthood: (1) those that face greater uncertainty and (2) those that have less access to other means of uncertainty reduction. Friedman et al. suggest that an example of the first category is minorities with poorer prospects of stable successful careers who will seek parenthood more to reduce uncertainty, while an example of the second category is persons with poorer prospects of stable marriage.

Uncertainty reduction theory contains a subsidiary assumption of the enhancement of marital solidarity. This assumption asserts that husbands and wives will seek to increase solidarity in their marriages. Parenthood thus could be hypothesized from the perspective of reducing uncertainty by increasing the stability of marriage (possibility correlated with parenthood).

Propositions from uncertainty reduction theory and its subsidiary assumptions can be derived for women acting alone as well as for couples making joint decisions. The important point of the theory is awareness that other factors could affect fertility and thus should be controlled. For that reason uncertainty reduction theory is said to be problematic in application to developing countries, where it is hard to disentangle the uncertainty reduction motivation from the economic motivation. Children in developing countries may increase a household's production capacity, and for that reason fertility behavior leads both to maximization of wealth and to uncertainty reduction. However, uncertainty reduction theory could be well applied to the fertility decision-making in developed countries.

The uncertainty reduction theory and its major premises have caused significant controversy. One of the dominant examples and arguably, the most challenging such controversy has been provided by a text by Lehrer, Grossband, Shechtman and Leasure (1966, 133-9), where these scholars criticized the uncertainty reduction theory on three accounts: They first argued that the theory had limited potential, furthermore stating that it would be internally inconsistent, while finally criticizing that the theory failed to stand empirical testing.

Regarding to Lehrer et al., a major objection to the uncertainty reduction theory is that the central assumption of the theory, namely that people have children to reduce uncertainty is counterintuitive. According to the authors, the many other incentives for parenthood such as an outlet for creativity and accomplishment, or an opportunity to guide, teach, and exert control are no less significant than reducing uncertainty. These motives are referred to as the "expansion of self" and have also been acknowledged by Friedman et al.; however, without assigning these motives a universal and central role in the decision to become a parent. Consequently, in this very line of critique about the uncertainty reduction theory, Lehrer et al. were even more radical, suggesting that assuming any particular reason for parenthood has poor research merits, therefore not providing a good point of departure to explore variations in fertility behavior (Lehrer et al., 1996, 133). In this first point of critique, Lehrer et al. (1996, 133) also included a disagreement with the premise of the uncertainty reduction "that the uncertainties emanating from parenthood are more controllable than those associated with labor force participation and marriage", thus rendering them more preferable.

Finally, the first critical point of Lehrer et al. also included a timing issue. The authors pointed out that children stay with parents long after such uncertainty has settled. Because of that, Lehrer et al. doubted the reduction of such short-term uncertainties to be a factor in the lifetime decision of becoming a parent.

The second point of the critique of the uncertainty reduction theory by Lehrer et al. addresses internal inconsistency. To support this point, the scholars introduced two hypotheses of Friedman et al. that, as the scholars suggest, contradict each other. The first hypothesis is that "financial and emotional support from families of origin has a negative effect on the propensity to parenthood" (Friedman et al., 1994, 385). The second one is that "social and geographical mobility has a negative effect on the propensity to parenthood (Friedman et. al, 386). Lehrer et al. suggested that the contradiction between these hypotheses lies in the fact that in the latter case "…they assert that couples who

cannot rely on friends and family will work harder to make their marriages solid, thus decreasing the need for parenthood as an uncertainty reduction mechanism" while first hypothesis "…implies that those who move away from their families should have relatively high fertility" (Lehrer et. al, 133).

Finally, in support of the third point of their critique of the uncertainty reduction theory, Lehrer et al. discuss numerous examples for where the driving hypotheses of the theory fail to generate empirical support. Furthermore, Lehrer et al. argue that most of these hypotheses could be derived from other, more plausible, theories of fertility behavior (here, the scholars mostly referred to the economic theory of fertility).

In particular, Lehrer et al. discussed the existing empirical support of the hypothesis of Friedman et al., linking marriage prospects to the propensity to "parenthood". According to this hypothesis, women that have a lower prospect of getting married (attributable mainly to the lower level of availability of marriageable males) have a higher tendency for parenthood as a means to reduce marriage related uncertainty.

Lehrer et al. argue that this hypothesis not only failed to achieve empirical support (they cite several studies evidencing the opposite), but it also suffered from the basic flaw that Friedman et al. did not distinguish between marital and nonmarital fertility. Lehrer et al. (1996, 135) suggested that it made "…little sense to talk about a link between marriage prospects and parenthood in general without making a distinction between marital and nonmarital fertility". In their reply, Friedman et al. disagreed with this (Ibid., 139), in turn suggesting that "prospects for marriage" are meaningless for already married couples, and are only valid for single women; therefore, this hypothesis only applied to the latter category. They also cited several empirical studies, some of which partially supporting, while others partially contradicting the claim of the hypothesis. A good example is the study of South and Lloyd (1992). Friedman et al. briefly discussed

this study in their “reply”, and further elaborated on it in greater detail in their major publication on the uncertainty reduction theory (Friedman et al., 1994, 391).

Indeed, South and Lloyd (1992) provided evidence for the expected effect on the availability of marriageable males in the metropolitan statistical area (MSA: a geographical region with a relatively high population density at its core and close economic ties throughout) on both nonmarital fertility ratios as well as rates for white women; however, for African-American women, marriage opportunities were significantly and negatively related only to the nonmarital fertility ratio. During another empirical study on the topic, Rindfuss and Parnell (1989) reported that poorly educated never-married African-American women had the same likelihood of conceiving during the subsequent twelve months, as currently married high school graduates.

Furthermore, Rindfuss and Bumpass (1976) reported that age at marital disruption is negatively related to the probability of intermarital fertility, which is a type of nonmarital fertility with births occurring during periods of marital disruption. According to Friedman et al., this can be used as further evidence against the hypothesis, as these sets of findings require the reexamination of this hypothesis as the prospects for marriage could easily have been overestimated. This highlights the importance for testing uncertainty reduction theory driven hypotheses across various groups, such as age, education, and race.

In their original study, Friedman et al. also reported the findings of many other empirical studies that tested major hypotheses, derived from the uncertainty reduction theory. Some of these hypotheses generated only supporting evidence, while others supplied both supporting and contrary evidence. In many cases, these discrepancies could be attributed to differences in the estimations of actual prospects for reducing uncertainty; in some cases discrepancies could be attributed to various assessments of the fertility rates themselves of the compared population groups. It is often the case that hypotheses

are supplemented, specified, or disproved when tested for special subgroups of the population and/or under various scope conditions. Friedman et al. (1994, 391) provided a good example for this, presenting various findings in the course of testing the hypothesis of the decreasing prospect of a good career due to parenthood. The cited research used subgroups of women of different races, ages, educational status, and occupational status for specification. Friedman et al. started to describe these findings according to Brewster, Billy, and Grady (1993), who have demonstrated that white adolescent women are significantly more likely to use means of contraception for their first intercourse, if they live in neighborhoods with more employment opportunities specifically for women. Ritchey and Strokes (1974) reported a contradicting relationship when comparing white adolescent women with high school education to those without high school education. Finally, Jacobson and Heaton (1991) reported that women with graduate education are more than twice as likely to be childless compared to women with less than college graduation.

Friedman et al. (1994, 391) also discussed several studies, describing tests for hypotheses of various occupational subgroups. Yogev and Vierra (1983) found that faculty women have higher rates of childlessness than the general population of women. Bloom and Pebley (1982) reported that above-average proportions of childless women hold employment jobs; however, Jacobson and Heaton (1991) found no significant effect between occupational classification and likelihood of childlessness. According to other studies (Callan 1982; Ramu 1984), childless wives have more education and higher-status occupations than mothers. However, it is quite possible to explain these patterns using different perspectives; most notably, from the perspectives of the theory on opportunity costs for women.

This discussion inevitably leads to a conclusion about the importance of further uncertainty theory driven hypotheses testing, with an emphasis on studying specific subgroups and outcomes in various scope conditions. The model proposed in this

dissertation research allows separating different types of uncertainties by linking them with different scopes and instability types (the next subsection elaborates on this). Furthermore, to explain empirical results from the perspective of alternatives to the uncertainty reduction theory, this dissertation research specifically focuses on discarding any alternative explanation of the obtained results (see discussion section).

Summing up, uncertainty reduction theory satisfies major criteria for researching the impact of societal instabilities on short-term fluctuations of fertility: it encompasses macro-micro links, applicable to short-term changes in demographic processes, and addresses the issue of values in fertility decision-making. However, there are several issues in explaining and researching instability that are not addressed by the original version of the theory.

Thus in the next sections I propose an extension of uncertainty reduction theory for the purposes of an application to the empirical research on the impact of societal instability on fertility. In doing so, I develop a model that links the macro-societal instabilities with micro-level perceptions of them as uncertainties and with fertility decision-making.

3.3.2. Application to the Empirical Research: General Model

The first step in applying uncertainty reduction theory to the empirical research linking societal instability with fertility is to define all macro-micro links. Uncertainty reduction theory operates mostly on a micro-level, linking individuals or family unit's perceptions of the situation they are facing in regard to uncertainty with the decision-making (including the one on fertility) that reduces uncertainty. Uncertainty reduction theory doesn't elaborate on connecting societal instability with its perception as uncertainty by individuals, leaving macro-micro connections largely implicit. Current empirical research, though, deals with different types and levels of societal instabilities that are macro-level phenomena (This issue was elaborated upon in Chapter 2). The first

general assumption links macro-level societal instabilities with micro-level perceptions of it as an uncertainty:

(1) *Instability on a macro-societal level produces uncertainty on an individual level or a micro-level of a family unit.*

This assumption is based on the connection of societal instabilities with increased uncertainty in such institutions as career and marriage, as well as uncertainty related to crime, accidents, and fear of war. Different types of societal instability could have various impacts on changing individual strategies in career, migration, investments, etc. due to perceptions of these instabilities as of uncertainties. The second general assumption links a micro-level perception of uncertainty with decision-making on fertility, with its general premise being borrowed from the uncertainty reduction theory:

(2) *The greater the perceived uncertainty on a micro-level, the greater the number of births per individual or a family.*

The second assumption has a large body of empirical support, according to Frideman et. al. Whether in a direct or indirect form (that is, linking fertility decision-making and behavior with individual uncertainty perception or status implying existence of such uncertainty), several works support this premise of an uncertainty reduction theory. It is, however, important to acknowledge that even if correlations between the above mentioned variables is found, it doesn't necessarily implies causation.

The hypothesis that arguably gathers the biggest empirical support is the one on negative effect of prospects for a stable and successful career on the propensity to parenthood. The derivation from this hypothesis is that stable employment and career are effective means to reducing uncertainty and thus subgroups with the poorest prospects for achieving them (like poor African-American teenaged women) are more likely to seek parenthood.

The work of Geronimus (1987) strongly supports this hypothesis. Based on a large set of data as well as on previous research, the author states that among urban poor Black Americans teen pregnancy became a norm. The figures are as follows: according to National Center for Health Statistics, 1981, while only 23% of white American first births were to teenagers, almost 50% of Black American first births were to teenage mothers. The figure was even higher for poor Black urban American mothers, one of the most disadvantaged groups in society in regards to having stable and successful careers.

What looks like even more convincing support of the uncertainty reduction theory's premise is that there is a differentiation in teenage childbearing *within* that group. Geronimus states that there is a different norm in the urban black community for teenage and out-of-wedlock childbearing for those women exhibiting exceptional academic achievement. The author argues, "Those teenagers believed to possess the skills necessary to overcome chronic barriers to achievement and upward social mobility are selected out of the peer group and are discouraged from bearing children during their teens" (Geronimus 1987: 256). So, even within a group of poor urban Black American young women, those having prospects of a stable career as a means of uncertainty reduction did not need to use another mean of its reduction - that is, early and/or out-of wedlock parenthood.

As a support for the hypothesis of the impact of stable and successful careers on fertility one can consider the work of Rindfuss, Morgan and Swicegood (1984). Their finding is that women with at least a college degree are substantially less likely to become mothers than other women. The authors explain it by the fact that "these are precisely the women who enter careers that effectively compete with the prospect of childbearing for woman's time" (Rindfuss et al. 1984: 369).

The second hypothesis that is derived from the uncertainty reduction theory and that has empirical support is the one of positive effect of the possibility of divorce on the propensity to parenthood. Divorce is viewed here as an uncertainty, so increased fertility is seen as a way to prevent it. The support for this hypothesis surfaced in some

interviews, conducted in the course of a scientific study of people who are childless by choice (Veevers 1980). The author notes that "marital insecurity often time leads to a more immediate decision about having children" (Veevers 1980: 37). Though specialists doubt that having a child is an effective solution of marital problems, respondents often times believe otherwise.

Even more convincing evidence of the impact of having children on marital stability is demonstrated in the significant number studies of fertility using to solidify and cement families, marital unions and step-families with still no signs of marital disruption. E.g., the confirmation of the hypothesis on the presence of children lowering the risk of marital disruption is stated in Cherlin 1977; Koo, Suchindran and Griffith 1984; Morgan and Rindfuss 1985; and Waite, Haggstrom and Kanouse 1985. Morgan, Lye and Condran (1988, 111) claim that, according to the published data from June 1980 Current Population Survey, in recent years "the children also appear to constitute financial, legal and emotional barriers to divorce" and that "the childless have the highest risk of marital disruption, except for those with children at the very early durations" (Ibid, 115).

Morgan et. al also provide an important argument in favor of such an interpretation of the link between having children and marital stability. Scholars suggest that the association between having children and marital stability may represent the opposite causal chain since parents differ from nonparents on a number of dimensions besides parenthood. However, as discussed, "the finding of differential rates of disruption by sex of children provides indirect support for the overall theory that children provide a new basis for marital stability built on parents' involvement with an investment in children" (Ibid., 124).

Along with research supporting the claim of children affecting marital stability, there are also studies investigating the role of child or children in cementing cohabitation relationships. For instance, Wu (1995, 231-236) researched event history data from the 1990 Family and Friends Survey on 3,015 cohabitation relationships. In the course of the study the scholar found a strong and positive impact of the presence of children on

stabilizing cohabitation relationships. This conclusion is of great importance for projecting future fertility in general and assessing the validity of the uncertainty reduction theory in particular since the number of cohabiting unions is on the rise.

The validity of the hypothesis of the presence of children's impact on marital and consensual unions' stability is further supported by the studies of stepfamilies. Prskawetz, Vikat, Philipov and Engelhard (2003, 108-144) suggest extending the concept of stepfamily: "…the term *stepfamily* that was formerly restricted to marriages only, needs to be extended to include consensual unions involving a child or only one partner. This definition of stepfamilies takes into account the fact that an increasing proportion of higher-order unions are consensual unions" (Ibid, 108).

Several studies (Vikat et. al 1999; Buber and Prskawetz 2000; Thomson et. al 2002) have demonstrated the union commitment effect on fertility. In Prskawetz et. al words, the latter means that "a birth risk is alleviated if a couple does not have shared children" (2003, 108). In the scholars' opinion, this is "… one of the driving forces of fertility in unions where either partner already has children from a previous union" (2003, 108). Vikat et. al (1999, 211-225) have specifically studied the impact of the number of births in previous unions on the desire to have a new child in a new consensual or marital union. For that purpose scholars compared fertility of Swedish men and women who lived in consensual or marital union in the 1970s and 1980s, the ones where at least one of the partners had children, with the demographic performance of the couples without any children before the current union. Vikat et. al have found the clear evidence that regardless of how many children (if any) they had before the current union, the couples wanted a shared biological child. In the scholars' opinion, the latter served to demonstrate a commitment to the union.

The important part of the discussion related to the proposed hypothesis is whether the reduction of uncertainty is reduced by moving from non-parenthood to parenthood, or also by increasing the number of children (e.g. giving birth to second or third child). Friedman et. al state that the main way of reducing uncertainty is to become a parent.

However, there are following reasons to believe that in many instances the increased number of children could also serve as means to combat uncertainty. First, there is evidence that the number of children is negatively correlated with the rates of marital disruption. Several studies (e.g. Cherlin 1977; Morgan et. al 1988; Waite and Lillard 1991) have convincingly demonstrated that reduced risk of marital disruption is associated with a larger number of children in the family.

Second, sex of a child plays a role in the odds of preserving marital stability. According to several studies (e.g. Morgan and Rindfuss 1985; Bumpass and Rindfuss 1983), the effects of sex composition of children on marital disruption are smaller compared with such huge correlates of divorce as race and age at marriage. Still, Morgan, Lye and Condrad (1988, 115) note that "for couples with one child, the figure shows that the risk of disruption is 9% higher for those with a daughter than for those with a son. For two-child families, the risk of disruption is lowest for couples with two sons, followed by those with one son and one daughter (9% higher), and the highest observed risk is "for the couples with two daughters (18% higher)."

In the same vein, Raley and Bianchi (2006, 401-421) cite research demonstrating a strong preference for having one child of each gender in USA and most of Europe. Several studies (Pollard and Morgan 2002, Sloan and Lee 1983, Williamson 1976, Yamaguchi and Ferguson 1995) provide evidence that cohorts of US parents born in the early 1900s and later, with two children of the same sex, were more likely to have a third child than the parents with children of different sexes. The study of Teachman and Schollaert 1989 showed that parents with children of the same sex were not only more likely to have a third child, but proceeded with that more quickly. The latter point allows for hypothesizing that in certain instances the desire to reduce uncertainty could result into narrowing birth intervals (this was leading to increase of TFR for corresponding years).

Raley et. al also cite research of Andersson et. al (2006) that also found differences in the probability of a third birth for those parents having two children of the

same sex in Scandinavia. While in Sweden, Denmark and Norway there is a greater likelihood of a third birth if the first siblings are boys, in Finland the third birth is more probable when there are two daughters. Finally, as was discussed above, the higher parity births could serve as means for marital stability in stepfamilies where joint biological child could appear regardless of number of children born in previous marital or consensual unions.

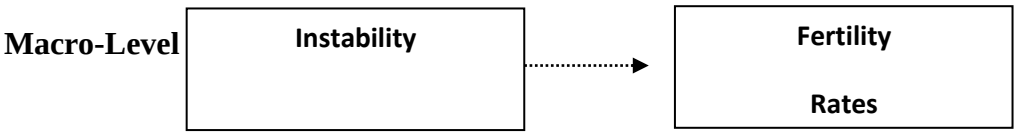
It is also worth mentioning again that uncertainty reduction theory propositions are valid for the decision-making in the state of symbolic uncertainty not directly related to changes in available economic resources. Thus uncertainty reduction theory premises could only be applied to the periods of sociopolitical instabilities that generate mostly symbolic uncertainties.

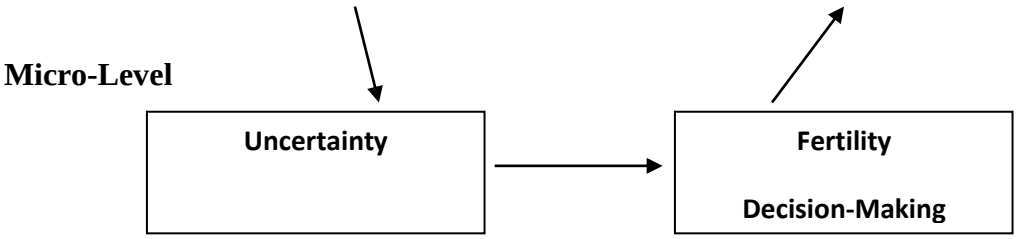
Finally, the assumption that links micro-level fertility rates is simple:

(3) *Changes on a micro-level will be reflected on a macro-level.*

The general model encompassing these three assumptions can be represented in a following way (see Figure 3.1):

Figure 3.1. The General Model for Evaluating Societal Instability's Impact on Fertility





The model is tested by comparing fertility rates at periods marked with different types of societal instabilities. However, the more detailed hypotheses that link these two macro-level variables, based upon developing assumptions about macro-micro and micro-micro levels connections, are formulated in the next section.

3.3.3. Development of the Model

The first step in exploring this heuristic model is to speculate about how different types and levels of societal instabilities (macro-level) at different periods are perceived by individuals and families (micro-level). In Chapter Two I have provided classification and periodization of different types and scopes of instability, and in order to maintain the first (macro-to-micro) link of the model one has to find corresponding levels of uncertainty.

It is obvious that those macro-level societal instabilities of various types, intensity and, magnitude generate different levels of uncertainty at the micro-level of an individual or a family. Governmental crises in Italy, for instance, will not generate as much uncertainty as the possible comeback of Communists to power in Russia as seen after 1996 elections. By the same token, uncertainty created by the 2000 presidential elections in the US was not reduced to the one related to a routine change in politics of a new Party and President. Such uncertainty generating issues as legitimacy of the new presidency, actual disenfranchisement of certain groups of electorate and vitality of such institutions as separation of executive and judicial branches, were also brought up.

Uncertainty reduction theory does not elaborate on ranking uncertainties in scope and intensity, much less relating them to corresponding types of instability. The key to

translating macro-level instabilities to micro-level uncertainty reduction assumptions is to look at how particular types of instabilities could be perceived by individual and by a family as uncertainty generating. In Chapter 2, I have provided conceptualization and analysis of the instabilities of various types, magnitude and intensity. It allows for making the following assumptions:

1. *The executive type of instabilities are perceived as generating fewer uncertainties than the "social unrest" type of instability;*

According to discussion provided in Chapter 2, the instabilities related to "reciprocal accountability" theory, are related solely to executive type. Thus periods marked with the instability of this type are characterized with lower level of instability that the ones related to the erosion of a "social contract" that are often times marked with social unrest such as strikes, civil disobedience, etc.

2. *The instabilities ranking higher on their magnitude, score higher on the perceived uncertainties*;

As for this measure of instability, the events typified with social unrest were assigned a score created from a set of five measures discussed in Chapter 2 that includes number of causalities, extent of property damage, duration of civil violence and area encompassed by the most widespread strife. Corresponding periods were ranked according to this criterion as well.

3. *The instabilities characterized by greater intensity are perceived as generating greater uncertainty.*

According to the earlier provided conceptualizations of instabilities, their intensity could vary from mild dislocations and internal strife that doesn't require police action to such events as strikes, civil dislocations, riots, coup d'état, power struggle and revolutions. Likewise, the periods of instability were ranked along the dimension of intensity as well.

Based on these three criteria of instability, the cumulative level of instability for each period was determined and the hypotheses of each period's corresponding and comparable impact on the individually perceived instability as uncertainty were formulated (See following section 3.4).

Each of these sociopolitical instabilities of various types, magnitude and intensity discussed above could be perceived differently at the individual level. Individual perception of each of these instabilities is also related to several other factors. One of the best works dedicated to these factors (worth exploring for the purposes of linking macro- and micro-levels) is comparative research on risk perception in Poland, Hungary, Norway and the United States (Goszczynska, Tyszka and Slovic, 1991). In estimating how people perceive risks and hazards Slovic developed a "psychometric paradigm" that elicits quantitative judgments of risk of diverse hazards, similar to certain kinds of psychophysical scaling. The comparison was made of these judgments with others of the same hazards on different scales, reflecting risk characteristics.

Risk characteristics were the following: unknown to the exposed, unknown to science, unfamiliar, involuntary, containing unobservable consequences, severity of consequences, dread, carrying catastrophic potential. Because of high correlations of some of these characteristics with each other they were reduced to two factors. Factor 1, called "unknown risk", included such scales as unknown to the exposed, unknown to science, unfamiliar and involuntary. Factor 2, "dread risk", was composed of such characteristics as severity of consequences, controllability, dread and catastrophic potential. These two factors were found to be accountable for some 75% of the total variance in the measures.

How could these risk factors be related to the uncertainty perception? Concepts of risk and uncertainty are often times used imprecisely and interchangeably in the decision-making literature. Risk factors defined by Goszczynska et. al, according to which the factor defined as "unknown risk", is actually referred to as an uncertainty. The latter differs from risk in one way: it is impossible to assign probabilities in the decision-

making process because they are unknown. The situations perceived by respondents as "unknown risk", as defined by Goszczynska et al., satisfy this criterion. Thus hazards that score high on the "unknown risk" scale -- such as social tension, economic crisis, nuclear power, shortages of home and medical equipment, shortage of dwellings -- could be well perceived as the ones creating uncertainty.

The way to employ these findings for the model is, first of all, to relate these uncertainty generating factors to the described types of societal instabilities. The first step -- translating macro-level instabilities to the micro-level perceptions of them as uncertainties for the purposes of formulating research hypotheses -- is to make assumptions about this translation. Based on the discussion provided above, the first assumption linking macro- and micro-levels could be formulated:

(1) *The more societal instability is related to situations that could be perceived as "unknown" factors, the more it is perceived as an uncertainty.*

Factor 2 is most closely associated with the following scales: dread uncontrollability, catastrophic potential, severity of consequences, risk for future generations, involuntariness and personal exposure to risk. This factor, called “dread”, is independent from the first, the “unknown risk” factor. Among hazards scoring high on the" dread” factor without scoring high on the “unknown” risk scale are: crime, shortage of food, nuclear weapons, alcohol, narcotics and terrorism. The two factors combined produce a joint picture of “unknowingness” and “dreadness” of risk. Hazards that reflect both “dreadness” and “unknowingness” are: economic crisis, social tension, repressions, shortage of medicines and medical equipment, nuclear power, pesticides and herbicides.

In opposition to the first factor, the second one is not related directly to the uncertainty, because it encompasses hazards with both known and unknown risk (i.e. uncertainty). However, I believe that the instabilities in societal segments related to more “dreadful” consequences will provide a stronger desire for uncertainty reduction than the

instabilities related to lesser "dread" hazards (given the same degree of "unknowingness", i.e. uncertainty itself). This assumption is based on the nonsystematic observations showing differences between perceptions of uncertainty, say, related to the introduction of socialized medicine and perception of uncertainty related to possibility of nuclear reactor explosion (though both could be characterized by the same degree of "unknowingness").

Hence, assumption two could be formulated:

(2) *People will be more motivated to reduce uncertainties related to societal instabilities that produce more "dread" consequences.*

The two factors described above were found to be accountable for some 75% of the total variance in the measures. The rest of the variance, according to that study, could be explained by two other factors. The first of these two other factors is the size of the country. The size of the country contributes to the perception of uncertainty in that: the bigger the country, the more its absolute number of accidents, crimes etc. are perceived as a threat even if the share of them in a given population is the same. This conclusion was illustrated by comparing differences in perceptions of the same hazards between populations of Poland, Hungary, Norway and U.S. (Goszczynska et al. 1991: 181).

The second of these two other factors is the media information policy. The cited study explains some of the differentiation in uncertainty perception in the observed countries by levels of openness of mass media (Goszczynska et al. 1991: 181). First, there is a difference in the level of censorship between communist and noncommunist countries. As noted by the authors, the strict censorship on accidents, shortages and crime in the communist countries could lead to the perceptions of those hazards that differ from the ones in the non-communist countries without such strict censorship. That is, they appear lower in communist countries.

Second, there are different levels of censorship across communist countries. For instance, people in Poland have relatively more information about such hazards as catastrophes, accidents and crime than people in the other former communist country,

Hungary, due to the existence of an independent Catholic press and numerous uncensored underground newspapers in Poland. This premise could also be applied nowadays to the "industrial democracies" because of different levels of informational availability in different parts of the countries.

The second finding allows postulating two additional assumptions about the perception of societal instabilities based on the discussed study:

(3) *The instabilities of the same levels of "unknowingness" and "dreadness" will be perceived differently at various historical periods. The periods characterized with greater access to information will be typified by a greater perception of uncertainty.*

(4) *The instabilities of the same levels of "unknowingness» and "dreadness" will be perceived differently in various regions of a given country. In the regions with greater access to information and less strict censorship the perception of uncertainty will be greater than the ones in the regions with lesser access to information and more strict censorship.*

These assumptions have implications for the macro-micro link – between societal instabilities and the individual's and family's perception of it as uncertainty. Only a part of this last set of assumptions (the ones formulated by Goszczynska et. al) was incorporated in postulating hypotheses and, correspondingly, many of them were not tested. The major reason for it is this research did not imply empirical testing of the individual perceptions of instabilities as well as the testing of the differences in this perception across the regions of the country. Also, some of the assumptions are not applicable to the researched period or applicable to just one event. For instance, assumption related to the "dreadness of the event" could be related to such event during the period of research interest as Chernobyl nuclear plant explosion.

At this point I am turning to the second part of the diagram -- micro-micro link. According to the uncertainty reduction theory outlined in previous section, increased uncertainty is a predictor for increased parenthood. The theory emphasizes moving from being a non-parent to the decision-making on having a child. However, it is possible to extend the theory also to certain kinds of other types of fertility increase like increasing numbers of second, third and forth orders of birth. First, given the "gendered" nature of social world, having a boy and a girl would further reduce uncertainty, because boys will constrain parents in some ways while girls will do so in other ways, which boys cannot do. So having two boys and two girls will not further reduce uncertainty, but having a girl and a boy would. It could provide an incentive for having a second, third or fourth child for having the one of an opposite sex.

Second, the increased amount of children could be viewed as increasing marital solidarity (the latter is also viewed as the means to reduce uncertainty). Friedman et.al cites Tseng (1992, 616): “The physical presence of children in the household serves as an obstacle to their parents’ marital breakdown.” Third, of even greater importance, the birth of an “additional” child of any parity is often given in the new marriages in order to enhance marital solidarity (in cases where there are children from previous marriages of any or both of the spouses). Children from previous marriages won’t do the job of enhancing marital solidarity but the ones from the current marriage will. Increased number of divorces and (in some countries like Russia) widowhood contribute to the increase of these types of births. Friedman et. al have acknowledged the measure of moving from non-parenthood to a one child to be an ideal one but they still used empirical studies measuring the actual number of children in a family for supporting or disproving their hypotheses.

Thus, the assumption linking uncertainty perception with fertility decision-making (micro-micro link) could be formulated in a following way:

(5) *The greater the perception of uncertainty, the greater the fertility outcome for an individual and/or a couple (resulting either from*

moving toward decision to have one child or, by increasing the number of children or, spacing the intervals between births differently).

In addition to that, I make an assumption about how a combination of sociopolitical instabilities and economic instabilities affect fertility. In this special case, I believe economic instability and crisis will affect fertility adversely, eliminating the possible positive impact of sociopolitical instability on this demographic process. So, the next assumption could be formulated in a following way:

(6) *At periods characterized by both profound economic and sociopolitical instability, fertility rates will decrease, mainly as a result of the former.*

This assumption is based on both theoretical assessments and certain empirical evidence. To get to the core of the problem, one has to define and divorce the concepts of economic and sociopolitical instabilities. As mentioned before, the former includes large falls in statistically measured output, high rates of inflation (Rostowsky, 1988, 1), falling income level, unemployment rate, uncertainty of finding a new job and unpaid wages (Koehler and Koehler 2002, 234). The examples of the latter, as was also mentioned before, are coups d'état, demonstrations, civil wars (Chauvet, 2002, 234), elite conflicts, changes in the executive, social conflicts, including strikes, riots, political assassinations, guerilla warfare, and civic wars (Alesina and Perotti 1993)).

Economic and sociopolitical instabilities are assumed to have opposite effects on fertility, the former negative and the latter positive. While sociopolitical instability is perceived as uncertainty (and therefore, according to the uncertainty reduction theory, increases birth rates), economic instability typically leaves one a possibility to assess risks and therefore is not perceived as uncertainty. Indeed, most sociopolitical instabilities such as coups d'état are hard to predict or assign odds to. At the same time, it is possible to estimate odds of losing one's job at the time of recession on the basis of existing trends and learning experience.

Indeed, persistent rises of unemployment or job insecurity, as stressed by Koehler and Koehler (2002, 243-244), could directly affect one's expectations about future earnings and wages. As they write:

> *"The individual's expectations about such persistent changes in unemployment or job insecurity are likely to be strongly influenced by current changes in unemployment and labor-market conditions: the worst recent conditions constitute the relevant experience that can be extrapolated into the future by individuals, and this 'learning on the basis of recent experience' is likely to be particularly relevant to the transition countries where individuals are faced with new institutional contexts that share few commonalities with the pre-1990 situation…" (Ibid.)*

Therefore, fertility behavior during the periods of economic instability is better explained by the microeconomic theory of fertility predicting decreasing birth rates under the conditions of rising inflation or falling income. The assumption about the prevalent influence of economic instability on fertility when it coincides with sociopolitical instability is based on the fact that people always prefer situations with known risk to uncertainty (Friedman et. al, 1994, 133) and the relevant empirical evidence (on which I elaborate later below).

The work of Koehler et. al (2002) provides a strong evidence of not only economic instability and crisis adversely affecting fertility but also of various types of economic instabilities having different impact on this demographic process depending on the ability to assess their odds (in other words, on whether they are perceived as uncertainties or not). On one hand, the scholars provide strong evidence of economic instability and crisis impact on declining fertility in Russia in the late 1980s and the first half of the 1990s using macro-level data. These include a strong association between the decline in fertility per capita GNP, with the most pronounced relationship between the fall of the latter and the rates of second and third births (Koehler et. al, 2002, 238)

However, micro-level data obtained in the course of the conducted Russian Longitudinal Monitoring Survey (RLMS) has provided mixed and what seemed to look like contradictory and counter-intuitive results. In the course of this survey the impact of fertility on various types of economic instability (such as short-term actual unemployment, delays or no-payment at the primary job, job insecurity) in the corresponding groups was studied and compared. It was found that, contrary to intuition, some groups facing labor market uncertainties reflected in unemployment and unpaid wages did not demonstrate decline in fertility, and sometimes even increased it. To explain this phenomena, Koehler et. al turn to the premises of uncertainty reduction theory attributing the decreased fertility to the desire to reduce the uncertainty related to the economic conditions. By introducing subjective measures of economic instabilities, Koehler et. al have obtained a support for this conclusion - these types of economic instabilities were indeed largely perceived as uncertainties.

At the same time, other types of economic instabilities don't fit this category. The groups experiencing them demonstrate decline of their birth rates. Among these other types of economic instabilities the ones associated with concerns about obtaining daily necessities like long-term unemployment (whereas actual unemployment in a sampling cluster could be of short-term and "only moderately related to no payment" (Koeler et. al. 2002, 245)). These types of economic instabilities where odds could be to a certain degree assessed and that are mostly associated with obtaining daily necessities cause the decline of fertility on behalf of corresponding groups, in accordance with the premises of microeconomic theory of fertility. Since these latter types of economic instabilities are prevalent, and the groups experiencing them constituted a majority in the late 1980s and early 1990s Russia, the overall impact of economic instability on fertility was adverse.

There are also many empirical examples of the negative association between economic instability and fertility. For instance, in the Commonwealth of Independent States (CIS) and Eastern European countries that underwent market reforms in the 1990s,

there was a deterioration of living standards that were followed by the decline of fertility. This decline was the most steep, pronounced and durable in the countries where reforms were the most painful for the population material-wise such as Russia, Ukraine, Moldova, Bulgaria, Slovakia and Romania. On the contrary, in the countries where reforms went relatively smoothly like Czech Republic, Poland, Hungary and Slovenia, decline of fertility was less steep and lasting. It is also of interest that, according to Sobotka (2003), in the first group the countries what was affected the most was the *quantum* of fertility, whereas in the second group the greatest effect of economic hardships concerned *tempo* of fertility. In other words, in the countries with milder manifestation of economic instability and crisis decline in fertility was largely attributable to the changing calendar of births while in the countries with huge degree of economic instability there was more substantial impact resulting in the diminished actual number of births for the whole childbearing period of women.

It is worth mentioning that in some countries economic instability have coincided with the sociopolitical ones. E.g. in Russia there was an armed stalemate between the executive and legislative branches of power that resulted in a bloodshed and arrest of Duma's (Russian parliament) leaders; in Ukraine there was the first "Maidan" in 2004, with demonstrations aimed for recounting of votes at the presidential elections, as well as the second "Maidan" in 2013 resulted in escape of the elected President and holding new presidential elections in advance. In neither case these sociopolitical instabilities were capable of changing the negative impact of persistent economic instability and crisis on fertility.

Finally, third link – the micro-to-macro one – does not require advancement and thus stays the same as formulated in the previous section:

(7) *Any increase in fertility of an individual or a family level will inevitably result in greater fertility rates at the societal level.*

This elaborated model that allows for translation of different types and scopes of instability into corresponding levels of uncertainties that affect fertility behavior and rates could be represented in the following way (see Figure 3.2):

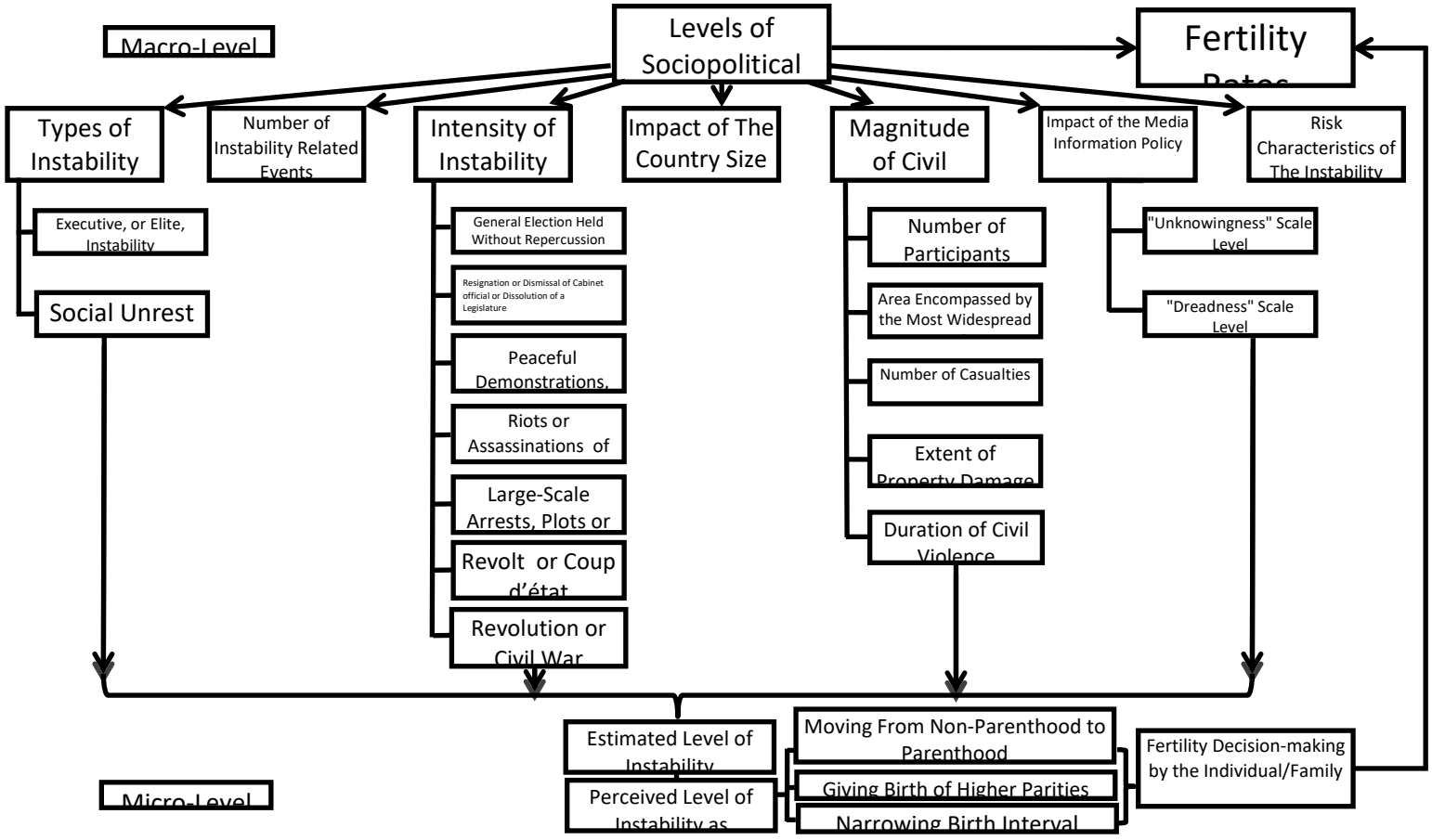
In the given research this very last group of assumptions was included in the formulated hypotheses only in part. The major reason for it is that this research operates only on the macro-level – it compares macro-level fertility rates in various periods of instability. The micro-level of an individual perception of instability as uncertainty is assumed in the model but not specifically studied here. Also, some assumptions include various perceptions of instability in dependence of the country size and remoteness of the regions. In this research only one country, USSR/Russia, has been the unit of analysis, and the regional variations in both fertility and individual perceptions of uncertainty were not researched.

However, some of assumptions proposed by Goszczynska et. al, were taken into account in formulating hypotheses. For instance, "the dreadness of the event" has added up to the cumulative index of instability at the period of explosion at the Chernobyl nuclear plant in 1986. Also, proclaimed policy of "perestroika" ("reconstruction)" by Gorbachev in the second half of the 1980s was taken into account as "the unknown event"; it added up to the overall level of instability at this period due to its magnitude, type ("erosion of a "social contract") and intensity. The loosening up censorship on mass media at the very end of the 1980s as a factor of instability's perception was also taken into account in my assumptions.

It seems that using this set of assumptions in a proposed model have a great potential for the future research. In particular, the dramatic increase of using Internet in Russia (from some 18 to 40 percent over the decade) could be viewed as a factor impacting perceptions of instability in various regions, different time periods and social strata, according to the assumption of Goszczynska et. al in testing the impact on fertility.

Based on the discussed above elaborations, I propose the following model of sociopolitical instability's impact on fertility:

Figure 3.2. Model of Sociopolitical Instability's Impact on Fertility



The model allows for linking these two phenomena – societal instability and short-term fluctuations of fertility – in the empirical research. It also allows for distinguishing between macro-societal instability and its perception as uncertainty on a micro-level of an individual or a family. This distinction was typically ignored in the theoretical and methodological literature on the subject. The result of it was the confusion of two levels of analysis – macro- and micro ones. This confusion has distorted the phased process of formulating the predictions of fertility rates for a given period. The proposed model resolves this problem by divorcing these two levels of analysis, thus allowing for better empirical tests of the hypotheses about the impact of societal instabilities on short-term fluctuations of fertility and, correspondingly, for the more accurate predictions of the latter.

The model is opened to practically any theory of instability as far as it allows for ranking their types in scope and intensity, thus allowing for translation into the individual's or family's perceptions of them as uncertainties. It incorporates premises of the extended uncertainty reduction theory but is not limited to them. The model also has an inclusion of connections between instability and its perception as uncertainty at the individual level – the ones that are not explicated by the uncertainty reduction theory. It proposes ranking uncertainty in regards to corresponding intensities of instability with the help of scaling "unknowingness" and "dreadness" levels.

The model could be tested directly, if the information about individual's or family's perceptions of uncertainty is available. In that case the test includes data on uncertainty perceptions and fertility decision-making. If this information is not available (which is the case of current research), the model could be tested indirectly by comparing different types of societal instabilities with fertility rates at any given period provided the availability of the reliable measures for both instability levels and fertility rates.

Combination of two theories' classification of instability provided in Chapter Two (the "reciprocal accountability" and "social contract" theories) had allowed rank ordering of the periods along the lines of scope and intensity of these instabilities, from the most

stable periods of collective leadership to the period of breakdown of social contract exemplified with the strongest instability (see Figure 3). The next step of the research is to provide macro-micro links, that is, to make assumptions about how societal instabilities were translated into individual's and family's perception of them as uncertainties. An important part of this work is linking these assumptions with the exact periods of research interest that are characterized with various kinds, intensities and magnitude of instabilities.

Here are these assumptions based on previous discussion that are the basis for moving to the formulation of the exact hypotheses:

1) Periods with similar types of instability vary in regards to degree of uncertainty they generate. The greater the institutionalization of "reciprocal accountability", the less there is an oscillation between directive and collective leadership and, hence, the less is the contestation of policy. Thus Brezhnev's contested directorship at 1982 had created less uncertainty than the one of Khrushchev at 1960-1964. By the same token, Brezhnev's breakout at 1965-1969 generated less uncertainty than the similar breakout of Khrushchev at 1954-1957.

2) Among two types of unstable periods, the one typified with the breakout of a leader and the other by contested leadership, the latter is perceived as the one generating greater uncertainty. Thus, Khrushchev's directorship at 1960-1964 had generated greater uncertainty than either Khrushchev's or Brezhnev's breakouts correspondingly at 1954-1957 and at 1965-1969.

3) The greatest uncertainty is generated at the periods of the deterioration and erosion of "social contract". These periods also score the highest on the scales of "unknowingness" and "dreadness". It is not accidental that such hazardous, dread and unknown risks containing

event as explosion at the nuclear plant in Chernobyl had happened exactly at that period.

4) At periods characterized by both profound economic *and* sociopolitical instability, fertility rates will decrease, mainly as a result of the former. Hence, the period of 1989-1997 marked with both profound sociopolitical instabilities and severe economic downturn and instability, should be characterized with the decline of fertility.

3.4. Hypotheses and Their Operationalization

Based on the previous discussion as well as on formulated assumptions, I will present the following hypotheses for further empirical testing. In addition to previously formulated assumptions, these hypotheses include references for the exact periods, marked with corresponding types of instabilities that enable testing. The operationalization of each hypothesis is based on linking them with the exact period specified according to type, intensity, and magnitude of the instability (discussed in Chapter 2, pp. 13-46). Correspondingly, the following presents the operationalized hypotheses:

H1. Periods of sociopolitical instability not coupled with economic crisis are characterized by increasing fertility. This stems from the major premise of the uncertainty reduction theory and defines linkages between instability and its perception as uncertainty.

Hence, fertility rates in each period of instability are increasing. Consequently, by the end of each such period, i.e. 1965-1969, 1954-1957, 1982, 1960-1964, and 1978-1988[1], fertility rates should be higher than at the beginning; even more so, than in years preceding each of these periods.

[1] In fact, the erosion of the social contract continued until 1991, the year of the breakdown of the USSR. However, severe economic crisis struck the USSR in 1989; thus, for the purposes of testing the impact of sociopolitical instability, I limited this period to the year 1988.

H2. The greater the extent of sociopolitical instability at the societal level (if not accompanied by severe economic crisis and instability), the greater the fertility rate for a given period should be.

Accordingly, each period marked with higher instability levels should be characterized by higher fertility rates. Hence, a hierarchy of fertility rates should appear across instability periods in the following way (arranged from lowest to highest instability):

1) 1965 – 1969: the Brezhnev's breakout
2) 1954 – 1957: the Khrushchev's breakout
3) 1982: Brezhnev's contested directorship[1]
4) 1960 – 1964: Khrushchev's contested directorship
5) 1978 (esp. 1981) – 1988[2]

H3. Stable periods are characterized by lower fertility rates than periods with sociopolitical instabilities. This originates from the premise of the uncertainty reduction theory to expect an increase of fertility during periods of uncertainty, caused by sociopolitical instability.

Hence, the stable periods of 1953-1954, 1965, 1957-1959, and 1970-1977 should be characterized by lower fertility rates than the periods of 1965-1969, 1954-1957, 1960-1964, 1978-1985, and 1986-1988 that, albeit being marked with sociopolitical instabilities, escaped severe economic crises.

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[1] The short period of instability related to Brezhnev's contested directorship overlapped with the broader period of the deterioration and erosion of the social contract.

[2] Here, the period of 1970-1981, which has been defined as stable according to the "reciprocal accountability' theory, was shortened since in 1978, the deterioration of the social contract began to manifest. For the same reason, a further period that has been defined as stable by the "reciprocal accountability" theory (1982-1986) has not been included here.

H4. Stable periods are characterized by greater homogeneity of fertility than periods marked with an increasing level of instability. Since fertility increases during unstable periods, fertility rates vary to a greater extent within these periods.

Hence, the stable periods of 1953-1954, 1965, 1957-1959, and 1970-1977 should be characterized by greater homogeneity of fertility than unstable periods such as 1965-1969, 1954-1957, 1960-1964, 1978-1985, and 1986-1988.

H5. During periods characterized by both profound economic *and* sociopolitical instability, fertility rates will decrease, mainly as a result of the former. Hence, the period of 1989-1997, which was marked by both profound sociopolitical instabilities and severe economic downturn and instability, should be characterized by a decline of fertility.

These hypotheses have been formulated for testing later in the dissertation. They include hypotheses about sociopolitical and economic instabilities. To split them as required, criteria have to be applied to refer each of the exact instabilities of any given period to the corresponding type.

Although sociopolitical and economic instabilities are often interconnected and sometimes overlap, the conceptualization of each is still quite distinctive. Using these conceptualizations, it is possible to assign a predominant type (either sociopolitical or economic) to a given instability to test a hypothesis for its prospective impact on fertility.

Chapter 2 provides some of the conceptualizations of sociopolitical instabilities. In summary, it is worth citing seminal work on the issue that "the notion of sociopolitical instability covers many heterogeneous events with different origins, intensities and actors, as, for example, coup d'état, demonstrations and civil wars" (Chauvet, 2002, 36). This paper also cited several other studies, assigning the following causes to sociopolitical instabilities: executive or elite instability, including legal or illegal, violent or non-violent, or changes in the executive power; social conflicts, including strikes, demonstrations, and riots; violent or armed instability, which is composed of political assassinations, guerilla warfare, and civil wars.

A very similar approach to the conceptualization of political instability has been expressed in a different seminal work (Horwitz, 1973, 449-463). The presence of political instability in society could be detected if any of the following criteria of stability are not met: a) the absence of violence; b) governmental longevity/duration; c) the existence of a legitimate constitutional regime; d) the absence of structural change; and e) a multifaceted societal attribute.

However, according to Rostowsky, economic instability manifests itself "… in the form of both large falls in statistically measured output and in very high rates of inflation" (Rostowsky, 1988, 1). Kohler and Kohler (2002, 234) cite proponents for the "economic crisis argument", providing an explanation of the decline in fertility in Russia and Eastern European countries, suggesting "falling income level, and rise in economic labour market uncertainty, and the disruption of traditional public transfer systems" as causes. With regard to the components of economic instability that Russia faced during the late 1980s to the early 1990s, these scholars also mentioned the unemployment rate, the prevalent uncertainty for finding a new job, and unpaid wages (the latter was very typical for Russia during the early 1990s, since employees were actually not paid for months).

In accordance with the discussion and expert evaluation provided in Chapter 2, none of the periods of sociopolitical instability that have been studied for this dissertation, were coupled with pronounced economic crisis and instability, except for the period from 1989 to 1997 when, along with sociopolitical instabilities, a severe economic crisis struck. As mentioned above, the hypothesis of the prevailing adverse impact of economic crisis on fertility was tested for this very period.

To test hypotheses on the impact of instabilities on fertility formulated in a given research, corresponding methods have to be employed and appropriate data has to be used. In the next Chapter, I will turn to discussing these issues, to accomplish a further empirical test of the proposed model.

Chapter Four

Data Analysis and Results

4.1. Methods and Performance of Data Analysis.

4.1.1. Dataset

The data on fertility used in this research are published by the *Roskomstat* (State Committee for Statistics), a Russian official body that is a major source of statistical information on economics, demography, social policy and other areas of social life. Data on demographic processes including fertility are obtained in the course of population census. The *Roskomstat* complements the census data with surveys taken at different times between censuses. The survey data are used to adjust demographic data for the inter-census years and to supplement the household data.

An important step to take before I start working with the obtained data is to estimate its validity. There is a huge amount of literature analyzing the *Roskomstat* data. These data combine the results of the Soviet-era censuses taken by the *Roskomstat*'s predecessor, TsSU (Central Statistical Bureau) and the data from post-Soviet censuses of the Russian Federation. There have been many publications criticizing the Soviet practice of census-taking, including the problems of determining ethnic identity (because ethnicity and language were linked to territorial rights) and consequent distortions of the Soviet ethnic composition, violating privacy rights, undercounting migrants, especially those living without registration; counting the total population based on the official registration rather than on actual residence; the actual disappearance of social classes in order to justify political claims of the developing of a "classless society"; and excluding the whole groups of population such as prisoners, military personnel and inhabitants of hidden settlements (secret towns) (Arel 2002, pp. 801-828; Blum 1996, pp. 81-95; Tolts, 2001).

In addition to the listed lines of critique, Tolts (2001) also admits manipulating data on mortality at a certain point of time. When Soviet leader Brezhnev made a claim in 1972 that life expectancy in Russia had reached 70 years, statistical data on mortality and

life expectance were slightly biased in rounding to justify the claim. Herrera (2004) states that in the later times of the USSR existence, the cooperation and direct contacts between Goskomstat and international and foreign institutions such as US Bureau of Census, World Bank, IMF and UN increased significantly. Such developments arguably led to the better census conducting and employing Western methods in, as Herrera puts it, "marketing the Census" (2004, 4). He also stresses that "on some issues such as under-counting, they [censuses] seem to have developed better methods" (2004, 5).

Censuses conducted by Goskomstat in Russia had improved, but inherited the flaws mostly related to biases in counting migrants and regional residents. Buckley, for instance, considers data on oblast (region) level very questionable, but stating that "…the Russian census might be in the ballpark with regards to its aggregate numbers, considering the over-and under-counts across the nation" (Joseph 2002, p. 3).

Regardless of the Soviet/Russian statistics flows, Goskomstat data on fertility were used and referred to in numerous publications and demographic studies conducted by Russian, Israeli, European and American scholars, e.g. Coale & Anderson (1979) and Tolts (2001) & Zakharov (2008). I'm therefore confident that using Goskomstat statistical data in my research is valid. Here are the major reasons for this confidence: Goskomstat material is based on the combination of census data and the data obtained in intermediate surveys; covers a period the most part of which was typified by improved methods of obtaining data or with data which were corrected later; covers fertility processes which were arguably the least impacted by data collection flaw; and is on the aggregate level, without division at the regional units (which are most prone to heavy bias).

4.1.2. Method

In order to test hypothesis formulated in the previous Chapter, one must first compare fertility levels at different periods marked with various scopes and levels of societal instability; and, second, compare fertility rates at the unstable and stable periods.

Still, while comparing fertility at different periods, age and cohort effects should be controlled for in order to single out the period effect. This control is essential for the purposes of my research since level and scope of societal instability vary across time periods. As noted by scholars (e.g. Mason et al., 1973), age, period and cohort effects are typically confounded in macro-level fertility analysis that uses annual rates. At the same time, the effects of age, period and cohort on a dependent variable can be causally distinctive.

The cited scholars provide an example that illustrates the point. This is one that involves the attempt to explain men's earnings in the United States over time. As noted by researchers, age per se could have an independent effect on earnings because of occupational experience. On the other hand, period that corresponds with age could also affect earnings independently because of wage-prices structure changes over time. Finally, membership in a cohort of a particular size also may affect job opportunities and, therefore, earnings. Yet, because age, period and cohort are linearly related to each other, and also are related to the independent variable, a three-way analysis would not provide an adequate result. Eliminating any of these parameters could lead to spurious relationships (Mason et. al, 1973, 246).

Social scientists have attempted to separate cohort, age and period effects for quite some time. For this purpose the class of age-period-cohort (APC) models has been developed. Each parameter's unique impact is estimated with the help of APC models. The latter are defined as a "class of models for demographic rates (mortality/morbidity/fertility/…) observed for a broad age range over a reasonably long time period, and classified by age and date of follow-up and date of birth" (Statistical Analysis of the Lexis Diagram: Age-Period-Cohort Models, 2016). There are quite a number of statistical papers discussing and actually applying APC models, particularly to vital events including diseases of various etiology (for example, Holford, 1983; 311-324; Clayton & Schifflers, 1987, 449-481; Carstensen, 2007, 3018-3045) and Rychtarikova (2008).

The major problem that APC models face is of identification; this problem arises from the exact linear dependence between the three variables, age, cohort and period. In order to overcome identification problem, various techniques have been developed and correspondingly utilized in different variants of APC models. There are three such major variants: first, the conventional Constrained Generalized Linear Model (CGLM) (Mason. et. al 1975); second, the Intrinsic Estimator (IE) (Fu 2000; Yang et. al 2004, 2008); and, third, Hierarchical Models including Cross-Classified Fixed Effects Models (CCFEM) and Cross-Classified Random Effects Models (CCREM) (Yang and Land 2006, 2008).

The first variant, the CGLM, is a coefficient-constrained approach. It implies placing at least one identifying restriction on the parameter vector. APC model becomes just-identified after the effects of two age, period or cohort groups are constrained to be equal. This constraint is placed based on prior theoretical knowledge. The latter, however, often times don't exist; also, different choices of identifying constraint lead to various estimates for age, period and cohort effects. Such a sensitivity of CGLM estimates to the choices of constraints has led to the development of the new APC model variants.

The group of scholars that has developed the second variant of APC, the IE (Yang, Fu and Land 2004, 75-110), claimed that it has clear advantages over CGLM. Among them the scholars mentioned IE being more direct and not requiring prior information for selection of the appropriate model identifying constraints. However, the claims of IE being less sensitive to the choice of constraints and thus having its estimates closer to the true parameters than the ones of CGLM, were recently disproved by several scholars (e.g. Kupper et. al 1985, Luo 2013). Luo (2013, 9) justifies her conclusion that "IE does impose constraints that are as consequential as those imposed by CGLM". She also cites Upper et. al (1985, 822) stating that "the choice of constraint is *the* crucial determinant of the accuracy in the estimated age, period and cohort effects". Therefore, in Luo's opinion, IE is no better that GGLM in respect to the possible flaws due to choosing the equality constraints in order to solve the identification problem" (2013, 15).

Finally, third variant of APC models designed to address the identification problem, are the hierarchical Models, correspondingly CCFEM and CCREM. The claim of these models solving identification problems, however, becomes highly disputable. Luo (2012), for instance, states that these variants of APC model don't automatically solve the identification problem; moreover, it implicitly imposes multiple constraints on the age, period, and cohort effects. In Luo's view, CCFEM and CCREM estimates thus "…can be highly biased and substantive conclusions can be misleading when any of the multiple constraints is not satisfied by the true age, period and cohort effects" (2012, 2). Luo further demonstrates that CCFEM's and CCREM's assumed multiple constraints on the age, period and cohort effects not only depend on the widths of these parameters' intervals but are also next to impossible to verify. Luo actually suggests certain advantages of CGLM over Hierarchical models in regard to resolving identification problem: "This feature [difficulties in verification] of CCFEM and CCREM is no different from the constraint assumed in CGLM except that the CGLM is explicit and usually imposes just one constraint" (2012, 19).

Based on the provided arguments, I use the CGLM variant of APC model in order to single out the period effect on fertility. In order to enhance the validity of parameter estimates, I use several pairs of equality constraints. CGLM uses a regression equation with dummy variables as a first step. This equation has the form of $Y_{ij}=\mu+\beta_i+\gamma_j+\delta_k+\varepsilon_{ij}$ where Y is the dependent variable, the effect of the i-th age group is given by β_i , the effect of the j-th period by γ_j , the effect of the k-th cohort by δ_k ; μ is the grand mean of the dependent variable and ε is the random disturbance.

The next step to estimate the separate effects of these variables is to make an assumption of equality of any two parameters in any single dimension (i.e. age, cohort or period). The decision as to which particular parameters the equality constraints are imposed on is made based on either prior theoretical assumptions or posterior empirical

observation. The estimates are then obtained by performing ordinary least squares, the cells of the underlying cohort table being the units of observation.

This model implies making the minimal number of the so-called equality constraints: only two coefficients in one of the three dimensions (age, cohort and period) are assumed to be equal. The implementation of that model shows, however, that results vary depending on which of the three dimensions the equality constraint is imposed on, as well as on which categories within the chosen dimension constrained. There is no way for choosing the best fitting model because coefficients of determination are identical for various models that are just-identified. Interpretative difficulties in such models could also stem from the absence of strong a priori conceptions on the part of the researcher.

To overcome that problem, Mason et al. (1973) suggest another version of the model that assumes employing more restrictions than just the minimal one needed for estimability. The scholars suggest equalizing two pairs of the coefficients (in two different dimensions) while excluding a single category in the third dimension. The equality constraints should be varied resulting in several models. The model with the largest R^2 is the one that gives the best estimate. It is worth mentioning that Mason et al. (1973) suggest increasing number of dimensions for enhancing equality constraints as a good policy. However, they leave room for other ways of estimating the model.

This variant of the model that one may term a model of enhanced equality constraints requires *a priori* knowledge of which categories in each dimension (age, period and cohort) are likely to have equal effects. In the absence of this knowledge, the following strategy is recommended. A step-wise procedure in which the whole dimensions are added or excluded from any given model could provide additional information about the ability of the dimensions to account for the variance in the dependent variable. The results then could be compared across a number of more-than-minimally restricted models. In particular, one compares the total R-square with the R-square's for the equations excluding single dimensions.

These methods were employed in my research for the purpose of singling out the period effect on fertility, which is my dependent variable. I will turn to the detailed description of the statistical procedures after describing the data used in my dissertation research.

4.1.3. Application of APC models

The data obtained from Roskomstat and used in this study contain age-specific fertility rates for five year interval groups for women ages 15 to 49. These data are available for the years of interest to this research, namely from 1952 to 1998. The technique of fertility ratio calculation for every given year is the following: numerator is the sum of births for the two consecutive years, and the denominator is the number of corresponding groups at the middle of the period. Thus the fertility rate is the average for the two year period.

The obtained data on age-specific fertility for the period of interest is represented in the Table 4.1.

TABLE 4.1. Age-Specific Birth Rates per 1000 Women: Russian Federation, 1959-1998														
TOTAL														
Age group	Years													
	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
15-19	28.4	27.5	26.7	27.2	21.3	21	22.7	24.7	25.6	26	27.3	28.3	29.7	30.9
20-24	157.9	157.7	157.5	156.7	156.3	156.2	150.8	150.3	147.8	143.1	142.9	146.9	152.6	156.1
25-29	156.4	154.5	152.7	142.8	137.3	130.3	122.8	120.1	114.9	110.9	109	107.4	109.5	116.3
30-34	101.9	100.2	99.5	91.8	86	80.5	77.3	77.7	77	74	72.4	69.3	68	65.6
35-39	57.7	56.5	54.3	47.3	44.5	41.4	39.2	38.1	36.1	33.5	32	32.2	32.5	33
40-44	19.9	17.3	16	15.7	14.9	14.1	13.4	12.6	11.6	10.8	10	9	8.3	7.9
45-49	3	2.5	1.9	1.7	1.6	1.5	1.5	1.4	1.3	1.2	1.2	1.1	0.8	0.7
15-49	82.9	83	81.8	78.4	73.4	67.6	62	59	56.4	53.6	52.9	53.4	54.4	55.2
CONTR	2.626	2.581	2.543	2.416	2.31	2.225	2.139	2.125	2.072	1.998	1.974	1.971	2.007	2.053
TFR	2.626	2.58	2.54	2.417	2.311	2.227	2.139	2.125	2.072	1.998	1.975	1.972	2.007	2.053

Age group	Years													
	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
15-19	31.5	32.8	33.9	34.5	35.6	37	40.8	42.7	43.3	43.8	45.3	46.3	47.4	47.4
20-24	154.7	155.5	158.8	158.8	158.6	156.2	155	157.1	157.2	161.5	167.3	165.8	167.5	167.5
25-29	114.4	112.8	110.5	108	107.8	106.5	103.1	101.2	103.5	107.9	118	112.9	119.7	119.7
30-34	63.3	60	58.6	58.2	60	59.2	55.6	52.6	53.5	56.6	63	59.9	65.1	65.1
35-39	32.5	30.9	28.9	26.5	23.7	21.6	19.6	18.4	19.1	22.9	24.2	23.6	25.8	25.8
40-44	7.5	7.3	7.3	7.3	7.1	6.7	5.9	5.1	4.5	4.3	3.9	3.6	5	5
45-49	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
15-49	54.9	55.3	56.6	57.1	57.7	58.1	59	59.6	61.1	63.7	67.7	65.6	66.9	66.9
CONTR	2.023	2	1.993	1.969	1.967	1.938	1.902	1.888	1.908	1.987	2.11	2.062	2.154	2.154
TFR	2.023	2	1.993	1.969	1.967	1.938	1.902	1.888					2.007	2.007

Age group	Years											
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
15-19	48.5	49.6	52.5	55.6	54.9	51.36	47.9	49.9	45.59	39.74	36.2	34
20-24	170.6	167.9	163.9	156.75	146.6	133.95	120.4	120.3	113.46	106.38	99	99
25-29	122.6	114.1	103.1	93.19	83	72.7	65	67.2	67.16	66.53	66.2	68
30-34	67.8	61.8	54.6	48.18	41.6	34.98	29.6	29.6	29.72	30.33	31.5	33.4
35-39	27.8	25.6	22	19.37	16.5	13.94	11.4	10.6	10.65	10.83	10.8	11.5
40-44	6.1	5.6	5	4.16	3.7	3.19	2.6	2.3	2.19	2.27	2.2	2.3
45-49	0.2	0.2	0.2	0.15	0.2	0.19	0.2	0.1	0.12	0.11	0.1	0.1
15-49	68.2	64.5	59.8	55.27	49.9	43.89	38.4	38	36.03	34.11	32.8	33.1
CONTR	2.218	2.124	2.007	1.887	1.733	1.552	1.386	1.4	1.344	1.281	1.23	1.242
TFR	1.887	1.732				1.552	1.385	1.4	1.344	1.281	1.23	1.242

Source:

Roskomstat of the Russian Federation (State Committee on Statistics of the Russian Federation)

As seen from the Table 4.1, the rows and columns are not fully compatible in format: while fertility rates are given for every year for the period of interest, in regard to ages these rates are provided for five-year groups. This poses a problem for applying the age-period-cohort (APC) model proposed by Mason et al (1973). We need compatible intervals for years and women ages to apply a model. One way to make rows and column fully compatible is to arrange fertility data by five-year intervals for the period dimension. However, that could make the analysis of period effects poorer and less informative. Therefore, before I turn to APC modeling and single out the period effect on fertility, I have performed an interpolation of fertility data by five-year age intervals.

The method used for that purpose is called the spline interpolation. It is a method that has been used in demography, and other disciplines, since the mid-20th century and is described in a large number of publications. The most explicit and direct explanation of splines application is presented by McNeil, Trussel and Turner (1977, 245-252). The scholars propose two variants of interpolation, the spline proper and the polynomial (called "smoother"). The first variant interpolates data points and satisfies boundary conditions by solving a linear equation.

The second variant assumes imputed values of zero at the extremes of the fertility-by-age distribution (these are 15 and 50 years of age). Imputed values smoothly reach zero at the extremes and turn to negative values beyond them. I have performed both variants of data interpolation, and performed further analysis with both types of interpolated data. This method has allowed for obtaining the approximate data for every year within each woman's age interval to make it compatible with the same interval of the period (a year) and, therefore, apply Mason et. al model. The transformed (interpolated) data were later used in the APC regression analysis using the approach proposed by Mason et al. (1973). The results of this analysis are further used in the estimation of period fertility parameters.

In accordance with the Mason et al. approach, I set up equality constraints for two different dimensions, one at a time: for birth cohorts of 1942 and 1943, and the other

- for the years from 1972 through 1977. Such constraints are necessary to decrease the number of degrees of freedom taken by the model and make the model identifiable. The choice of particular parameters to constrain was based in part on empirical observations but also on literature discussed in Chapter 2. The rationale for choosing these parameters is the following: cohorts of 1942 and 1943 are the ones that appeared in the hardest times of the Second World War, which implies their similarity. The period from 1972 to 1977, according to the typology provided in Chapter 2, is considered to be a stable one, resulting in minimal differences of period effects within the time frame.

Initially, many coefficients appeared to be not statistically significant. That was even to some extent the case with applying the constraints of the years from 1971 through 1978 in the smoother version (see Table A1.1). The probable reason may be the fact that the model was still overspecified, with too many free parameters. For this reason, I have used the number of equality constraints in several dimensions simultaneously and performed ANOVA with all of these constraints in the spline variant. This approach resulted in coefficients with good significance (see Table A1.2). These coefficients were actually very close in all of the runs. Therefore, the data from Table A1.2 was used for interpreting results.

I present the results of APC analysis for the spline with enhanced equality constraints (fertility parameters are assumed to be equal, most importantly, in the following dimensions: at age 45=46; age 47=48; in the year 1970=1971) in Table A1.2. As seen from this table, the coefficients are significant for most of the important years in this application of APC model. The t-statistics are above the critical level of 1.96.

The results are presented graphically in the following Figures for the spline with enhanced equality constraints:

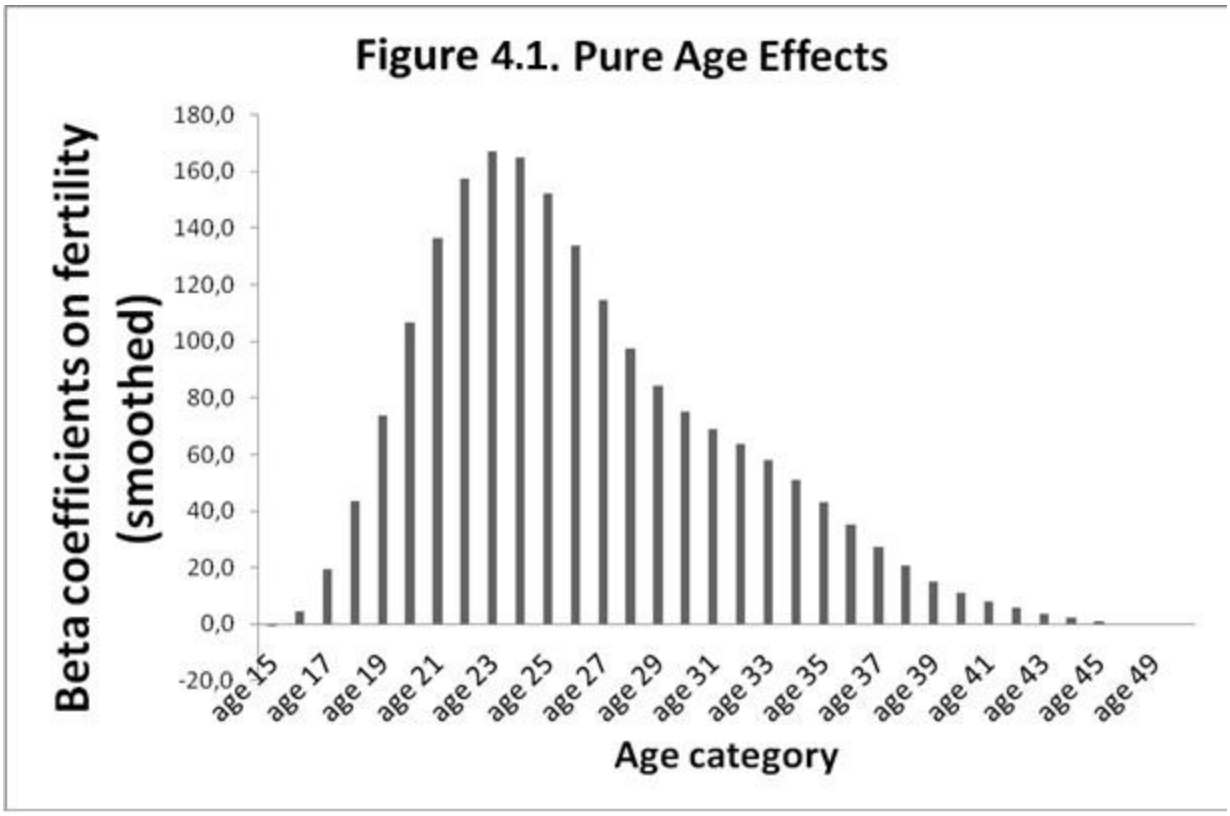


Figure4.1 presents pure age effects on fertility in the observed period as modeled by the APC regression. Although age effects are not the focus of this research, it is worthwhile to consider this result. One can see on this figure that fertility rises rapidly from a near-zero level until it peaks at about 23 years and thereafter it falls down smoothly back to a near-zero level at this side of forties. This is precisely what one would expect to see, which confirms the validity of the Mason et al. method employed here.

The units in which beta-coefficients are measured are the units of my dependent variable that is the number of births per 1000 childbearing aged women. The greatest beta-coefficient for the age category 23 means that this age group's contribution to fertility, disentangled from the period and cohort effects, is about 170 births per 1000 childbearing aged women.

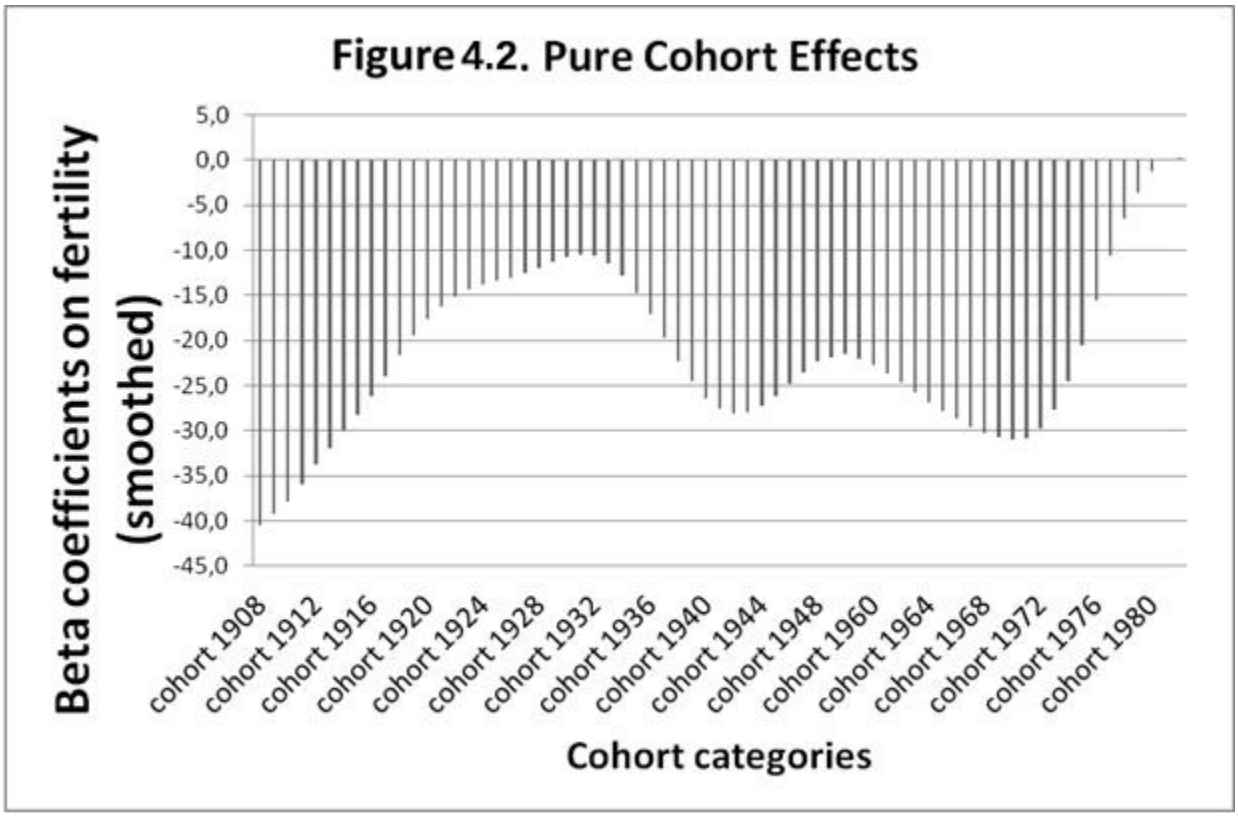


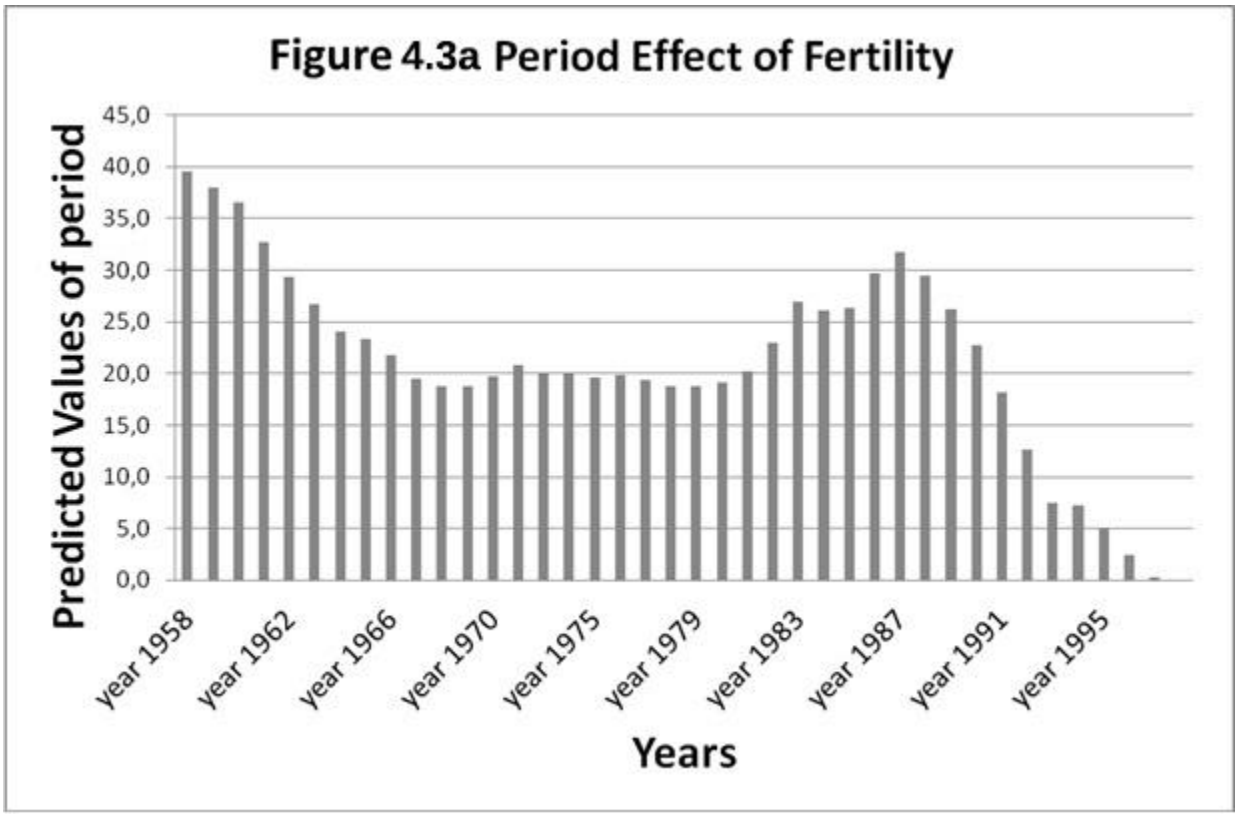
Figure 4.2 shows pure cohort effects on fertility from the APC model. All effects are negative because it follows from the basic equation:

Age=Period – Cohort

that age, period, and cohort are linearly related. Therefore age and period effects are all going to have positive effects in the model whereas cohort effects will be negative. The pattern of relative differences of the cohort effects against each other is the point here. As in the case with the age effects, beta-coefficients indicate the contribution of one cohort group to fertility cleansed from age and period effects. The difference between betas for the cohorts of 1931 and the 1971 years of births, 20.39, means that there were 20.30 less

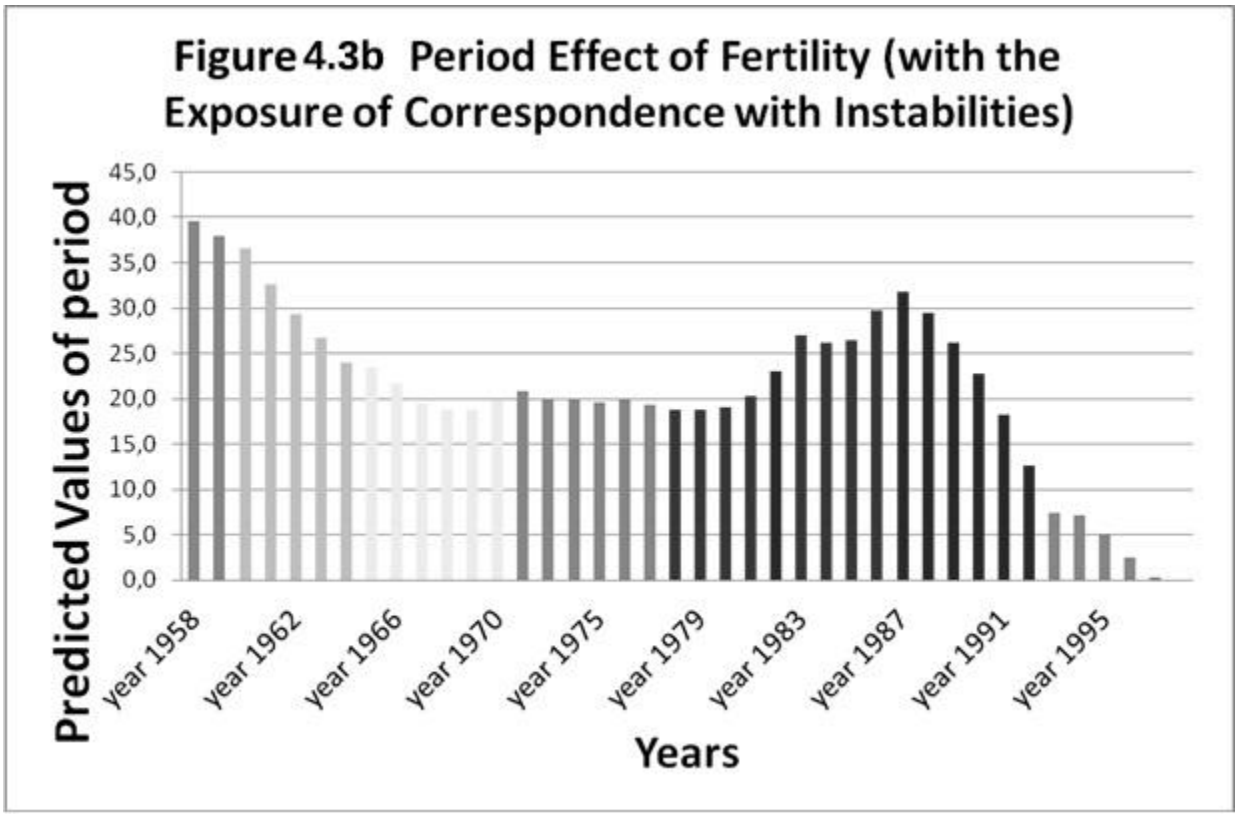
births for 1000 childbearing aged women, controlling for period and age effects, for the latter cohort.

Whereas the pattern of age effects shown in this Figure is relatively universal, the pattern of cohort effects is more complex and relates to the Russian history. However, the same pattern was found by Zakharov (2006, 2008), which again corroborates the validity of Mason et al. method. As I focus our study on period effects rather than cohort effects, we are not going to discuss this issue further.



Period effect of ferility is the major focus of the dissertation research. It is determined with the help of applying an APC model-based analysis and could also be

represented in relation to the reviewed types, intensity and magnitude of instabilities for the corresponding periods (see Figure 4.3b):



extreme instability

strong instability

moderate instability

mild instability

stability

At Figures 4.3a and 4.3b pure period effects cleansed of age and cohort effects are presented. These are the central finding of the dissertation research and are discussed further below.

4.2. Results

This section presents the results of hypotheses testing. As previously mentioned, I used the method recommended by Mason et al. for producing and comparing betas. In comparison to other methods, such as the standard deviation, the main advantage of Mason's method is the ability to provide accurate information for a small number of observation points.

H1. Periods of sociopolitical instability not coupled with economic crisis are characterized by increased fertility.

This hypothesis assumes that fertility rates of each period of sociopolitical instability should be increasing. Consequently, by the end of each such period (i.e., 1965-1969, 1954-1957, 1982, 1960-1964, and 1978-1988), fertility rates should be higher than at the beginning; even more so, than in years preceding these periods.

As shown by Figures 3a and 3b, fertility has in fact declined during the period of 1965-1969. Data was not available for 1954-1957 and thus, H1 could not be tested for this duration. The year 1982 was part of a broader period of increased instability (1978-1986) and thus, could not be tested separately. Fertility has indeed increased during the period of 1978-1986, which is associated with both deterioration and erosion of the social contract. The difference in betas between these extreme years is quite substantial, comprising 10.69; furthermore, the difference between betas for 1978 and 1987, the years of peak fertility for this period, was even higher, equaling 13.08.

This supports the hypothesis for the period of 1978-1988, as the a period with the steepest increase of sociopolitical instability due to the deterioration and erosion of the "social contract", during some years coupled with instability related to "reciprocal accountability" (see Figure 4.3b).

H2. Increased sociopolitical instability at the societal level (if not accompanied by severe economic instability and crisis) will lead to higher fertility rate for a given period.

Accordingly, each period marked with a higher instability level should be characterized by increased fertility rates. Hence, a hierarchy of fertility rates should appear across instability periods according to the following order (arranged from lowest to highest instability): 1965-1969: Brezhnev's breakout; 1954-1957: Khrushchev's breakout; 1982: Brezhnev's contested directorship[1]; 1960-1964: Khrushchev's contested directorship; 1978-1988 (particularly 1981)[2];

To test this hypothesis, the average betas of the sociopolitical instability periods were compared. The following lists their values for the corresponding periods:

For 1965-1969, the average beta equaled 20.43; for 1954-1957, data was not available. Brezhnev's contested directorship during 1982 overlapped with a stronger type of instability, related to the deterioration and erosion of the social contract (1978-1988)[3];

[1] The short period of instability related to Brezhnev's contested directorship overlapped with the extended period of the deterioration and erosion of the social contract.

[2] The period of 1970-1981 was defined as stable according to the "reciprocal accountability" theory. This period was shortened because the deterioration of the social contract began to manifest itself in 1978. For the same reason, a further period, which was defined as stable by the "reciprocal accountability" theory, was not included here (1982-1986).

[3] Although the erosion of the social contract has lasted up to the very breakdown of the USSR in 1991, the part of this period from 1989 to 1991 was marked with the propagation of a severe economic crisis, followed by instability and thus, was tested as a separate hypothesis.

the average beta for 1960-1964 equaled 29.85, and for the period of 1978-1988 the average beta was 24.56.

Since the trend of fertility increase lasted until 1987, it is worth investigating the average beta for this very period (up to 1987). It equals 24.08. Evident from a comparison between these average betas, the hypothesis could not be confirmed.

H3. Stable periods are characterized by lower fertility rates than periods with sociopolitical instabilities. Therefore and in accordance to the earlier assumption, the level of uncertainty increased during periods of instability, leading to an increase of fertility.

The stable periods of 1953-1954, 1965, 1957-1959, and 1970-1977 should therefore be characterized by lower fertility rates than the periods of 1965-1969, 1954-1957, 1960-1964, and 1978-1988[3] that were marked with sociopolitical instabilities without simultaneous severe economic instability and crisis.

To test this hypothesis, the average betas of stable periods were compared with those of periods marked with sociopolitical instabilities. They can be ordered according to the following for stable periods: for 1953-1954 no data was available; for 1965, the average beta equaled 23.38; for 1957-1959: data was merely available for 1958-1959 and for these years, the average beta equaled 38.77; for 1970-1977 the average beta was 19.92.

For unstable periods, average betas had the following values: for 1965-1969: 20.43; for 1954-1957: no data available; for 1960-1964: 29.85; for 1978-1988: 24.5; and for 1978-1987: 24.08.

This hypothesis was partially confirmed: the betas for unstable periods were indeed higher than for stable periods, with the exception of one stable (1957-1959) and one unstable (1965-1969) period. An in-depth exploration, further confirming the partial substantiation of this hypothesis, is provided in the “Discussion” section.

H4. Stable periods are characterized by increased homogeneity of fertility compared to periods characterized by an increasing level of instability. Since fertility increases during unstable periods, fertility rates vary to a larger extent during unstable periods.

The stable periods of 1953-1954, 1965, 1957-1959, and 1970-1977 were characterized by an increased homogeneity of fertility compared to unstable periods such as 1965-1969, 1954-1957, 1960-1964, 1978-1985, and 1986-1988. Typically, the standard variation is a good measure of homogeneity, and consequently, this has been widely used. However, for small observational data sets (the case of some of the periods for which the homogeneity was tested for the research of this dissertation), the result could be strongly biased. Therefore, it is not quite accurate to compare the levels of homogeneity between various periods (i.e. comparing periods with small and large numbers of observations). Various scholars in the field (e.g. Eisenberg, 2015) have elaborated the downside of using absolute and relative standard deviation. Therefore, I used beta coefficients, given that Friedman et. al (1994) recommend them in particular for a variety of interpretations related to divorcing age, period, and cohort effects. Homogeneity of the periods was measured and compared via the difference between highest and lowest betas within each period. These differences are provided below for selected periods. First, I calculated these differences for the stable periods for which I had the necessary data. I could not calculate the difference for the stable period of 1965 because this was only one stable year that was framed by unstable periods. For the stable period of 1957-1959, data was only available for 1958-1959. The difference of betas for these years comprised 1.62. The next stable period was 1970-1977 and data was available for the whole period. The corresponding difference for a given period equaled 0.42 betas.

At this point, I proceed to unstable periods. The differences of betas for these periods were the following: for 1965-1969: 4.66 betas; for 1957: no data available; for 1960-1964: 12.53 betas; and for the period of 1978-1988: two important results were

found. The difference between the betas for the years 1985 and 1978 equaled 7.65, while the difference between 1986 and 1988 comprised 0.26.

Hypothesis 4 could be fully confirmed for all periods for which data was available, and an incomplete data set was only available for one period.

H5. During periods characterized by both profound economic *and* sociopolitical instability, fertility rates will decrease, mainly due to economic instability. Hence, the period of 1989-1997, which was characterized by a combination of sociopolitical instabilities, and severe economic instability was also characterized by a decline of fertility.

To test the hypothesis, betas were compared between the year when economic downturn started (1989) and the preceding year. Furthermore, the year when the economic downturn leveled off was compared with the first following year and the preceding year.

The period of economic recession lasted from 1989 to 1997. The differences between the betas for the corresponding years were: 25.88 betas between 1989 and 1997, and 29.08 betas between 1989 and 1997. These differences were the most pronounced among all revealed during testing of all formulated hypotheses.

Consequently, this confirmed the hypothesis, despite the fact that the actual decline of fertility started one year earlier (during 1988). I will suggest possible causes of this discrepancy in the Discussion section.

Chapter Five

Discussion and Directions for Future Research

5.1. Discussion

The application of the APC model allowed singling out the period effect of fertility. However, the period effect was not necessarily equal to the impact of social and political instability. Period effects are affected by first and second demographic

transitions, population policy, changes in housing policies, and specific governmental policies (e.g. campaigns against alcohol), which could also account for fertility swings. Thus, the major emphasis of this discussion was to provide a thorough analysis with the goal of defining whether the findings are attributable to the impact of sociopolitical and economic instabilities, or if other period effects also accounted for changes in fertility rates. Furthermore, I will discuss how the obtained results resonate with the hypotheses and with the existing theory they are based upon (which extends the uncertainty reduction theory).

Hypothesis 1

First and foremost, it is important to determine whether demographic transitions overlap with any of the periods for which specific hypotheses have been formulated and for which findings have been provided. The reason for this is that demographic transitions imply long-term radical shifts in fertility that overshadows any prospective short-term fluctuations, including those due the impact of societal instabilities. This also applies to Hypothesis 1, since its testing involved periods that coincide with the uncompleted First Demographic Transition.

As noted by previous studies, the demographic transition, which has manifested as a steady decline of fertility in Russia, began at the very end of the 19th century and continued throughout the first half of the 20th century (Zakharov, 2008; Shcherbov & Van Vianen, 2001). Scholars also noted that the forced and brutal modernization of the USSR contributed to the pace of demographic transition, which started later than in most European countries.

Furthermore noted by many scholars (e.g. Zakharov, 2003; 2008), the first demographic transition in Russia was completed in the 1960s. Zakharov (2008, 911) provided a major criterion for the completion of the demographic transition in Russia, i.e. the convergence of total fertility in the cohorts of “mothers” and their “daughters,” with

the former born between 1920 and 1930. Along with other criteria, such as cohort convergence and total period fertility levels, while also narrowing the spatial fertility variation, convergence of total fertility levels in the cohorts of "mothers" and "daughters" testified to the completeness of the transition to a new type of fertility by the end of the 1960s. This conclusion about both timing and completion of the demographic transition of Russia will be applied to the interpretation of each of the five major hypotheses of the current study. The following describes how this impacts the findings of Hypothesis 1 testing:

In contrast to the hypothesis about increased fertility during periods of sociopolitical instability, two of the periods with mild instability (1960-1964 and 1965-1969), were characterized by a decline of birth rates. Since these periods coincided with the completion of the demographic transition, fertility decline was attributable to this very phenomenon. Since long-term demographic transition, typified by a decrease of fertility to a level close to population replacement (TFR = 2.1), is more powerful than a short-term influence of instability, the possible impact of social instability on fertility could be nullified. Thus, both periods of 1960-1964 and 1965-1969 that coincide with the completion of a demographic transition, are not ideal for hypothesis testing. This enhances the plausibility of Hypothesis 1, since the remaining instability period (1978-1986)[1] largely demonstrated a steady and statistically significant increase of fertility. For further confirmation of the positive impact of instability on the fertility hypothesis, other possible period effects of processes during that period should either be ruled out or singled out.

Many demographers attributed the observed fertility increase of 1981 to the implementation of a pronatalist population policy. The pronatalist set of measures

[1] The impacted instability period of 1954-1957 remained outside of the available data coverage, while Brezhnev's contested directorship of 1982 lies within the period of deterioration and erosion of the social contract (1978-1986).

included partially paid maternity leave, tax deductions for families with two and more children, allowances and deductions for housing and for the placing of children in kindergartens for the same category, extension of the possibility for working part-time, and sliding shifts for young mothers, which were all introduced starting November 1st 1981. These measures were implemented in three stages: the first stage started on November 1st 1981, in the most demographically challenging areas (those with lowest fertility) such as the far East, Siberia, Karelia, and the Komi autonomous republics, as well as the cities of Arkhangelsk, Murmansk, Vologda, Novgorod, and Pskov; the second stage started in November 1982 and included the rest of Russia; the third stage started in November 1983 and included the other republics of the USSR.

However, several reasons exist for considering factors other than population policy that have contributed to the pronounced fertility increase during the early 1980s. First, the increase of fertility during 1981 reflected both in TFR of official statistics and the period effect singled out in the current study (see Figure 3a), which is hard to attribute to just the population policy effect. The reason for this is that only two months had passed since the introduction of the policy measures and only a small part of the country was encompassed by them at that time (Siberia and the Far East have a very small population: Arkhangelsk, Murmansk, Vologda, Novgorod, and Pskov have a total of about three million people, while Karelia and Komi are autonomous republics with tiny, but also very aged populations).

Some demographers pointed out that the mere announcement of the pronatalist policies formed a possible reason for the immediate increase of fertility. I.e. Arkhangelskyi (2006, p. 8) reported that the mere publication of the resolution on population policy implementation during the first quarter of 1981 could have had an impact since it did not contain information about the time frame for policy introduction across the country; consequently, the population could have had the illusion that these measures were being introduced straight away and countrywide. Zakharov (2006, p. 401) however, doubted that citizens were so naive.

Most importantly, this points towards the possibility of some other factor (besides population policy) accounting for the increase in fertility across country shortly before the announcement and implementation of the population policy. Many demographers (Kuzmin, 1993; Arkhangelskyi, 1994; Borisov & Sinelnikov, 1996) noted that such a fertility increase in many regions of Russia had already started by 1980, which is close to the timing of both announcement and implementation of the population policy. This further implies other reasons for the increase in fertility beyond the pronatalist policy. Population policy, according to this point of view, merely enhanced a developing trend.

In an attempt to explain this pre-policy implementation demographic trend, demographers suggested an increasing shift toward younger ages. Indeed, this timing effect could result in an increase of TFR that confounds to period, cohort, and age effects. Ideally, to confirm any period effect (including the impact of instability), one has to be guided by the results of an APC model. Data obtained via this model in a current research did not indicate a fertility increase in pre-1981 years, thus enabling the fertility shift to younger ages (i.e. a cohort effect) as the most plausible explanation for the observed fertility increase at this very time.

However, when analyzing the period effect of fertility increase in 1981 as evidenced by the results of implementing an APC model in the current study (see Figure 3b), the impact of the fertility shift to younger ages could be ruled out. Two types of period effects, one regarding population policy and one regarding the impact of instability, were the only contenders to provide a plausible cause for the fertility increase during that period. Due to the reservations provided for the singular impact of the population policy, the instability impact hypothesis gained credibility.

The period effect of fertility at that time (see Figure 3b) revealed a steady increase from 1981 to 1987, with just one interruption, as fertility rates leveled off in 1984 and 1985. This coincides with the finding of a statistical analysis that used the TFR. While some demographers attributed the increase in fertility from 1981 to 1987 to pronatalist population policies, the vast majority of scholars credit the population policy

implementation for enhancing fertility in 1981-1983, arguing that other factors could account for the more steeply increasing TFRs in 1985-1987. Reasons for this prevailing opinion include: first, the experience of population policy implementation in Eastern European countries, where fertility increases lasted three to five years subsequent to policy implementation; second: never throughout the history of population policy introduction, was an interruption of a trend observed (such as the case in 1984 and 1985 in the USSR). For the latter phenomenon, it is worth mentioning that not even a slightly plausible explanation has ever been provided (within the premise of the impact of the population policy on fertility for the whole period between 1981 and 1987).

Therefore, the majority of scholars who do not relate the fertility increases in 1986 and 1987 to population policy measures usually attribute the phenomenon to one of the following reasons: first, to expectations related to Mikhail Gorbachev's "perestroika" ("reconstruction"); second, to the anti-alcohol campaign launched by Gorbachev during the second half of the eighties (Klupt, 2008; Rimashevskaya & Milovidov, 1988), as discussed below.

The first listed reason for the increased fertility during this period can be regarded as a variant of the uncertainty reduction theory. Indeed, there were no odds of success connected to hopes related to the proclaimed "perestroika" (reconstruction) politics, which aimed to bring a human face to socialism, loosen censorship in the mass media ("glasnost"), and to hopefully, unleash the hidden potential of socialism. Thus, expectations of people during this period most likely fit the definition of a perception of uncertainty. However, such expectations contained mostly optimistic components for the majority of the population, making corresponding demographic reactions a special case. Little theoretical framework exists that explained the impact of such expectations on fertility; however, such a positive causation cannot be entirely ruled out. The question remains of why the fertility in the USSR already entered a steep decline in 1988, when hopes (or illusions) for the success of perestroika had not yet evaporated, and economic hardship had not fully unfolded.

The following provides an analysis of the validity of the second explanation. In 1985, an anti-alcohol campaign was introduced by Gorbachev (after which the General Secretary of the Communist Party Gorbachev was nicknamed “Mineral Secretary”). The reason for launching this anti-alcohol campaign had its origins in severe and increasing problems of alcoholism in the USSR. Reitan provided a full account of measures encompassed by the anti-alcohol campaign (2001, p.244). These measures included reductions in state production and sale of alcoholic beverages, considerable price increases, increasing of the minimum purchasing age to 21, restricting the hours of sale and the number of outlets and serving places, closing of breweries and some banning of drinking at the workplace, as well as toughening penalties for the latter and for public drunkenness, drinking at the workplace, drunk driving, and production and sale of *samogon* (home-brew).

To determine the validity of the claim for an anti-alcohol campaign as the reason for a fertility increase in 1986 and 1987, it is important to look at the duration of this campaign. The resolution on the war on alcoholism was adopted in May 1985 and enforced from June 1st of the same year. Reitan (2001, p. 245) has distinguished narrow and wider definitions of the campaign period. The narrow definition was given to the active period of policy intervention (from 1985 to 1987/1988) while the wider definition referred to a period well into the 1990s. Reitan (2001, p. 245) furthermore cited various views on the actual impact of the campaign that range from a few months to all the way to 1990.

To better understand both the duration of the anti-alcohol campaign and the temporal scope of its impact, it is worth reviewing the main stages involved in terminating this campaign. According to an account cited by Reitan (2001, p. 245-246), the stages included the cancellation of the criminal liability for personal *samogon* use in July 1987, followed by an increase in state sales of alcoholic beverages in January 1988, and the adoption of a resolution in October 1988 for the redundancy of anti-alcohol pressure after which, the campaign ceased to be enforced.

In the vast amount of literature on the results of the anti-alcohol campaign, major emphasis has been put on its impact on mortality. Some publications analyzed the campaign's impact on revenues, financial instability, and as a result, on social upheaval. Finally, a certain amount of studies focused on the influence of the campaign on various aspects of social life such as crime rates, work, and family. However, absolutely no thorough research exists on the impact of this anti-alcohol campaign on fertility.

In one of the rare studies that touch upon this connection (Rimashevskaya & Milovidov, 1988), the impact of the anti-alcohol campaign on fertility increase has been acknowledged; however, no mechanism or scope of such an impact was introduced. Klupt (2008, 317) briefly mentioned the possibility for an impact of the campaign on the increase in fertility, linking the "hope of women for correcting husbands' drinking".

It is quite possible to imply the prospective impact on fertility of the mentioned social changes that were introduced by the anti-alcohol campaign. Improvement of relations in family life, reduction of crimes, and diminishing suicide rates could definitely have impacted fertility to a certain extent. Although the magnitude of this impact has not yet been studied, there is reason to believe it could hardly lead to such a significant increase in fertility as the one observed in 1986 and 1987. I.e., one of the possible social reasons for a specific fertility increase could have been the reduction in female suicide after the implementation of the anti-alcohol campaign. However, this most likely had very limited impact on fertility since, according to an account of Wasserman, Varnik, and Eklund (1998), the attributable fraction of alcohol for female suicides (and also female violent deaths) were a mere 27%, which was about half of those of males. Furthermore, not all of these suicides were committed by childbearing aged women.

Further doubt for the explanation of a huge increase in fertility during 1986 and 1987 by one single factor (an anti-alcohol campaign) is the abrupt reversal of this demographic trend in 1988, while the anti-alcohol campaign had gradually slowed and eventually reversed in the second half of 1987 and 1988. In summary, existing explanations fail to account for the three issues of the observed phenomenon of fertility

increase from 1981 to 1987.

First, the question remains of why such a substantial fertility increase happened in 1981, while an announcement on the perspective introduction of population policy measures was only introduced this very year, the regions where these measures were going to be introduced had not been specified and, eventually, they were implemented this very year in just few regions with only a small fraction of the population. Second, it remains unclear why fertility, initially increasing for three to five years after policy's implementation in all countries, started decreasing after that, while in the USSR, instead of decreasing, birth rates leveled off for at least one year. Finally, the third question implies a sound and justifiable explanation of a further increase of fertility at 1986 and 1987.

An explanation that encompasses uncertainty reduction premises fills this gap and contributes to a coherent interpretation of fertility dynamics during this period. According to this explanation, 1981 was the year when the erosion of the "social contract" became especially evident and, consequently, fertility increased to compensate for the related uncertainty. This increase was enhanced by the introduction of a pronatalist population policy and by the shifting of births to younger ages of mothers. After three years of increasing fertility rates, these should have decreased again as was the case in all countries where pronatalist population policies were implemented. However, the impact of instability related to the erosion of the "social contract" did not allow fertility to "bend"; it had not yet declined as in other countries, but instead just leveled off. Then, during the next couple of years, fertility continued its upward trend as a result of further erosion of the "social contract", possibly also enhanced by the anti-alcohol campaign.

Hypothesis 2

The notion of demographic transition during the 1960s clarifies why Hypothesis 2 has not been confirmed. During the pre-completion of the transition period, fertility was obviously higher; therefore, the basis for comparison of two instability periods at that

decade is biased. Unfortunately, there is no way to test this hypothesis, comparing fertility during periods controlled for the stage of demographic transition or during periods after its completion.

Hypothesis 3

Similarly, the coinciding of the ongoing demographic transition with many of the periods marked with either stability or instability undermines the value of the results of Hypothesis 3. However, comparing adjacent periods of stability and instability (e.g. the stable period of 1957-1959 with the unstable one of 1960-1964) that are close to each other in regard to the advance of the demographic transition could enhance the validity of a partial confirmation of the hypothesis. Indeed, most of the unstable periods, both during and after the completion of demographic transition, demonstrated larger betas than those for most of the stable periods. The fact that the hypothesis has been partially confirmed *despite* the existing fertility differences was assumed to be due to the different stages of demographic transition between various periods, thus enhancing the strength of its confirmation.

Hypothesis 4

Taking fertility dynamics during demographic transition into account enhances the strength and value of the confirmation of Hypothesis 4. Indeed, it is reasonable to imply heterogeneity during periods within the completion of demographic transition (since fertility steadily decreased during these periods). However, according to the obtained results, fertility was still more homogenous during stable periods at times of demographic transition, than during unstable periods that overlapped with the completion of demographic transitions.

Hypothesis 5

Finally, Hypothesis 5 about the decisive adverse effect of economic instability

and the deterioration on fertility even when coupled with tremendous sociopolitical instability has been strongly confirmed, albeit with an amendment (see previous sections). As clearly evidenced by Figures 3a and 3b, fertility entered a steep decline in 1988 and remained that way until the very end of the 1990s. Several major alternative explanations exist that can explain this phenomenon. One explanation relates the steep decline in fertility rates in Russia during the 1990s with the postponed impact of the implementation of the population policy during the 1980s. A second explanation links the fertility dynamics in Russia at this period to the effects of reforms that had been started by Gorbachev and that eventually resulted in the economic turmoil and hardship for the population. A third explanation blames the start of the Second Demographic Transition in Russia. A detailed analysis of all three possible explanations is provided in Appendix 1 to this Chapter (see p. 145). I provide arguments in favor for the second explanation, placing the highest weight on the steep decline of fertility in Russia at that time on both economic instability and crisis.

In the context of this discussion, it is worth mentioning that the formulated hypothesis of a joint impact of economic and sociopolitical instability has obtained the most unambiguous support. Differences in betas were most pronounced for periods of economic instability. The plausibility for the conclusion of the dominant and adverse effect of economic instability on fertility has been supported by the fact that it was coupled with the strongest possible sociopolitical instability related (among other things) to the deterioration and eventual breakdown of the social contract, which coincided with the disintegration of the USSR itself. Other numerous severe types of sociopolitical instabilities existed as well. For instance, the shooting of the opposition-dominated parliament upon the order of President B. Yeltsin in 1993, or the elections of 1996 when Communists were about to come to power, that could have potentially reversed economic and political reforms, to name but a few. However, none of these sociopolitical instabilities that were not always directly related to economics reversed the decline of fertility or even slowed its steepness. This clearly emphasized the

prevalence of economic factors when these are associated with the severe deterioration of living standards over any type of symbolic effect of (sociopolitical) uncertainties when it comes to affecting fertility dynamics.

The following provides a brief summary on how the overall results resonate with the formulated hypotheses as well as with the uncertainty reduction theory. Four of the five formulated hypotheses (1 to 4) were related to assumptions about various types and intensities of sociopolitical instabilities, affecting the individual perception of uncertainty, thus leading to increased fertility. The results for testing each of these hypotheses were investigating the confirmation from various angles (increased fertility during unstable periods, hierarchy of fertility levels during periods characterized with various types and degrees of instability, homogeneity of fertility rates in stable vs. unstable periods, and differences in fertility rates during stable and unstable periods). As mentioned above, some of these hypotheses were largely or partially confirmed, while others were dismissed. For the latter, it was hard to tell whether these hypotheses were dismissed because they were not correct, or because of incomplete data and/or the inability to control for other factors (with the stage of demographic transition as the major factor).

Arguably, the strongest confirmation was obtained for the hypothesis that fertility was impacted by the strongest type of sociopolitical instability, typified by the erosion and deterioration of the social contract, which happened in the Soviet Union for most of the 1980s (up to the start of the massive economic instability crisis during 1988). This is in line with the premises of the uncertainty reduction theory, linking a strong desire to reduce uncertainty (and therefore, to increase fertility as the means of achieving this) with the extent of objective uncertainty (Friedman et. al, 384). However, it is hard to determine whether this theory works for minor types and intensities of sociopolitical instabilities (e.g. related to the oscillation of "reciprocal accountability" at the upper tier of the elite) since, for the above-mentioned reasons, confirmation of the related hypotheses were either not obtained, or were more ambiguous, or less pronounced.

The fifth hypothesis linked economic instability with fertility, postulating an adverse effect of the former on the latter. This relates to the uncertainty reduction theory in the sense that the adverse relationship was assumed to hold even while coupled with sociopolitical instability. This hypothesis was strongly confirmed, with rates of fertility declining during the corresponding period from the advance of economic instability and crisis in the USSR from 1988 to the 1990s as the most pronounced period. This implies the necessity of a certain amendment to the uncertainty reduction theory by specifying the scope condition under which its central premise is not working (sociopolitical instability when coupled with economic instability is not leading to increased fertility as the means to reduce uncertainty).

5.2. Directions for Future Research

The conclusions of this research have led to realizing a need for further development of the topic, including both refinement of the concepts and methodology and also an extension of the scope and units of analysis. Here are possible avenues for the future research and advance of methodologies.

1. Hypotheses in this research were tested indirectly, by comparing macro-level data. However, it seems beneficial to test hypotheses along the macro-micro and micro-micro links outlined in a model as well. This implies getting data on subjective perceptions of instabilities. However strong the association of objectively (conceptually) defined types and intensities of instability at various periods with their subjective perception as the ones creating uncertainty, are, there still could be discrepancies between them. Thus it could be relevant to follow the Weberian idea of getting into people's heads by testing their subjective perceptions of different types of instabilities as of uncertainties and the latter's impact on fertility decision-making. For that purpose one has to interview women and spouses with both fresh and distant memories of their fertility decision-making and childbearing. It is worth performing both longitudinal and wave studies to

view the dynamics of changes in both actual and conditional (synthetic) cohorts.

2. My unit of analysis in this research was the entire country - that's what the demographic data was available for. It will be, however, beneficial to test the hypotheses on instability's impact on fertility across different regions of the country as well. There are several rationales for doing that. First, the perception of instability can vary across regions. According the above cited Godszynska et al., (1991, p. 181), the latter can vary depending on the size of the country and the level of political censorship that could also vary in the country's center and the periphery.

At the times of the USSR existence there was indeed a huge difference between access to the independent and semi-independent sources of information between large cities like Moscow and St. Petersburg and remote parts of the country. These days this gap is narrowing, partially due to the advance of the Internet. However, the difference in access to the information between various areas and types of residence in the country still remains, in part due to the different levels of the Internet availability. Thus, differences in uncertainty perception across regions of the country are worth exploring in order to test specific impacts on the local fertility decision-making.

A second reason for studying regional variations in instability's impact on fertility is the heterogeneity of the population in regard to the stages of the demographic development across the country. While in some parts demographic transition was completed by the 1960s of the 20th century, in other parts of Russia the process is still on the way. That implies different reactions to the impact of social-political instabilities that are mudded if fertility dynamics is studied in the country as a whole.

Finally, the marked heterogeneity of fertility behavior in the Russian Federation regions significantly overlaps (though does not full coincide) with ethnic and religious diversity of population. For example, several autonomous republics like Tatarstan, Dagestan, Chechnya, Ingushetiya and Kabardino-Balkaria are predominantly populated by ethnic groups confessing Islam. This also could have a distinct impact on the perception of societal instability as well as latter's influence on fertility given specific

national traditions and faith. Also, various regions of Russia differ extremely in regard to the level of modernization. Along with highly developed regions that include huge economic and cultural centers like Moscow and St. Petersburg and the ones rich with oil, gas and diamonds (e.g. Yamalo-Nentskii disctrict or Tumenskaya region), there are also many depressed areas like Valdai or Pskov. Most likely, the perception of societal instabilities and, hence, its impact on fertility would vary across these regions.

3. Fertility data used in this research does not differentiate across groups having various social economic statuses. It will be beneficial to compare levels of individual perceptions of uncertainty across social groups with different fertility decision-making and outcome. It is worth saying that fertility behavior of various social, professional and educational groups in Russia demonstrate unique patterns of demographic behavior. For instance, Perelli-Harris and Gerber's (2009) study on the spread of the second demographic transition in Russia has showed that postponement of the first births of a child is more typical for women with a middle level of education than for educated and disadvantaged groups. So, it is equally plausible that perception of societal instabilities of different types and corresponding fertility decision-making also significantly and unexpectedly differ across these groups.

4. In this research the hypotheses of societal instabilities' impact on fertility are tested for the fertile aged women as a whole, without singling out marital and non-marital births. This distinction, however, could be quite relevant to the topic. The thing is that instability could have distinct impact on the dynamics of each. Moreover, as noted by Perelli-Harris and Gerber (2010, pp. 2-5), nonmarital childbearing could be the product of two very distinctive social patterns: either lack of human and financial resources that is associated with disadvantage and poverty, or the rejection of traditional institutions, a process outlined by the second demographic transition (In regard to Russia, authors also found, in addition, some unique patterns as well).

As the example of the first category, Perelli-Harris and Gerber (2010) bring the case of nonmarital childbearing in the US that is "associated with the inability to maintain

healthy marriages and a descent into poverty". The second pattern, according to these authors, is exemplified by Northern European countries. The importance of further research of this category's demographic behavior for exploring instability's impact on fertility is evident since the authors claim that "given the instability of the economic situation following the transition to capitalism the rise in nonmarital childbearing could be associated with economic hardship and general life instability" (Perelli-Harris and Gerber, 2010).

Because the share of nonmarital childbearing is steadily growing in the developed countries and its growth could be attributed to various reasons across the countries, with some of them being related to crisis and instabilities, and some to the advance of the Second Demographic Transition, it is worth studying instability's impact on marital and nonmarital fertility separately. Moreover, since the reasons for non-martial fertility dynamics could vary, it is worth studying demographic trends for several internal clusters of this category.

5. This research mostly explores the impact of different types of societal instability on fertility outcomes at the period ending up at early 1990s. One of the reasons that the time frame of the research has not been extended so far is that there are no well developed theories of instability types for the period after the breakdown of the USSR. In the dissertation research I have employed two well developed and all-encompassing theories, "reciprocal accountability" and "social contract". They allowed for the detailed specification and ranking of the instabilities' periods in the country that made it possible to perform the empirical test of the hypotheses. However, both theories (at least in their original form) are not applicable to the post-Soviet period.

That brings the broader issue of further development of conceptualizations and theories of societal instabilities of different types and scopes; the ones that encompass major traits of instabilities, classify and rank them in type, scope and intensity. Finding commonalities in the types of these new instabilities allows for not only testing the uncertainty reduction theory in new scopes but also for making larger generalizations and

conclusions.

6. Agenda for a future research of the more recent periods (1990s, 2000s and 2010s) also implies having a strategy for divorcing the social and political instabilities (that translates into a perception of them as symbolic uncertainties) and economic instabilities. These two are often times intertwined making it harder to draw definite conclusions. In a present research there were, however, several periods when social and political instabilities were largely not accompanied by severe economic crisis. It is worth exploring the paths of the two phenomena, economic and sociopolitical instabilities separately, in order to make definite conclusions on the impact of each.

It is worth mentioning in that regard that most of the 1990s in Russia were marked with economic hardships however accompanied by social and political uncertainties. The latter include such political developments as the shooting of the Parliament dominated by opposition by President B.Yeltsin in 1993 and uncertainty related to the presidential elections of 1996 that contained a real possibility of the Communists coming to power again. The most severe economic downturn was arguably the default of 1998 that has, most likely, resulted in the nadir of Russian post-war fertility level – with Total Fertility Rate equaling 1.17 the next year.

Most of the next decade, the 2000s, was generally perceived as political and socially stable. It was also typified with gradual increase of standard of living due to monetary policy, liberal reforms and the high prices of oil. Not only sustainable economic growth and increasing salaries but also the increased number of goods on the shelves and newly available loans coupled with popularity of the country's President contributed to what many respondents perceived as an overall stability. However, by the end of the decade things started to change some. Again, two types of instability, economic and sociopolitical one started to manifest themselves at the same time. The first one was associated with the advance of the world economic crisis of the 2008 that has impacted Russia the most of all other countries. Also, at that time there were many events pointing out for the systemic flaws of the current model of society and, thus, the need and

possibility of its correction or change. This attitude on behalf of population was reflected in the surveys of the VTSIOM, the major sociological agency of Moscow.

Future research that would continue investigating this very aspect's impact on fertility in the 1990s, 2000s and periods to come should not only employ theories defining types, scopes and scales of the specific instabilities that have surfaced at these very periods but also a strategy for singling out the contribution of each type of various instabilities and, possibly, the combined effect of all.

7. Specifying types of instabilities in regard to their perspective impact on fertility decision-making and behavior, as well as working out a technique for divorcing their specific effects on that demographic process, are also needed for the other future research, the one on a global scale. I believe at least some part of the findings on instabilities' impact on fertility outcomes in the USSR/Russia can be generalized for the other countries and global players as well. There is a lot of discussion about current and perspective instabilities and related uncertainties that the world faces. They are both of economic and symbolic types. Dramatic rise of fertility after the terrorist attack on the Twin Towers Some of these instabilities types overlap with each other and, what is very important for future hypotheses testing, coincide with the unfolding economic crisis. As mentioned in the previous discussion on the topic, the latter has started to show up in the mid-1980s and has rapidly accelerated in the late 1980s.

Uncertainties related to such perspective economic and sociopolitical instabilities, the ones that the world arguably faces, also merit exploring them from the standpoint of their impact on fertility decision-making and behavior. Among such possible events one can mention the perspective changing of the political configuration of the world global players with possible creation of the non-polar (not a multi-polar!) world; change in consumerist consciousness and behavior; conversion (according to E. Wallerstein) of capitalism to an unknown system in the next 20 to 30 years; climate change related to global warming that could cause dramatic changes in the very existence of the world economy, communications and the very cities and countries; the expediting speed of the

lava rise to the surface in Yellowstone Park that could replicate the Iceland volcano on a much greater scale; and the other unforeseen political, social and economic events.

Conclusion

In the course of this research the impact of certain types of societal instabilities on fertility was demonstrated. This is true in regard to such a strong type of instability as erosion and deterioration of such a basic institutional provision as “social contract”. It is very plausible that such a strong type of instability was the major reason for the increase of fertility that is conducive with uncertainty reduction theory. The impact of other types of sociopolitical instabilities on fertility dynamics was not unambiguously confirmed, and in some cases such an impact was ruled out. There is also a significant evidence of stable periods being more homogeneous in regard to fertility dynamics than unstable ones. It was also clearly demonstrated that economic downturn that results in severe deterioration of living standards and conditions and related economic instability has a decisive impact on the steep decline of birth rates regardless of the simultaneous presence of profound sociopolitical instabilities.

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APPENDIX 1 to CHAPTER 4:

TABLE A1.1

PARAMETER ESTIMATES OF AGE, PERIOD, AND COHORT EFFECTS ON AGE-SPECIFIC FERTILITY per 1000 WOMEN (SMOOTHER)					
	Coefficients(a)				
	Unstandardized Coefficients	Std.Error	Standardized Coefficients	T	Sig.
INTERCEPT		-0.69	7.54	-0.09	0.93
AGES					
age 16	7.09	2.42	0.02	2.93	0.00
age 17	21.24	2.54	0.06	8.36	0
age 18	43.36	2.72	0.13	15.97	0.00
age 19	71.15	2.94	0.22	24.19	0.00
age 20	100.63	3.21	0.31	31.37	0.00
age 21	127.09	3.50	0.39	36.26	0.00
age 22	146.23	3.83	0.45	38.22	0.00
age 23	155.33	4.16	0.47	37.30	0.00
age 24	153.89	4.52	0.47	34.06	0.00
age 25	143.62	4.88	0.44	29.41	0.00
age 26	127.83	5.26	0.39	24.32	0.00
age 27	110.29	5.64	0.34	19.57	0.00
age 28	94.06	6.02	0.29	15.62	0.00
age 29	80.83	6.41	0.25	12.60	0.00
age 30	70.89	6.81	0.22	10.41	0.00
age 31	63.40	7.21	0.19	8.80	0.00
age 32	57.05	7.61	0.17	7.50	0.00
age 33	50.70	8.01	0.15	6.33	0.00
age 34	43.74	8.41	0.13	5.20	0.00
age 35	36.12	8.81	0.11	4.10	0.00
age 36	28.25	9.22	0.09	3.06	0.00
age 37	20.70	9.63	0.06	2.15	0.03
age 38	13.98	10.04	0.04	1.39	0.16

age 39	8.38	10.45	0.03	0.80	0.42
age 40	3.94	10.86	0.01	0.36	0.72
age 41	0.50	11.27	0.00	0.04	0.97
age 42	-2.19	11.68	-0.01	-0.19	0.85
age 43	-4.37	12.10	-0.01	-0.36	0.72
age 44	-6.16	12.51	-0.02	-0.49	0.62
age 45	-7.62	12.93	-0.02	-0.59	0.56
age 46	-8.71	13.35	-0.03	-0.65	0.51
age 47	-9.41	13.77	-0.03	-0.68	0.49
age 48	-9.72	14.18	-0.03	-0.69	0.49
age 49	-9.74	14.60	-0.03	-0.67	0.51
age 50	-9.56	15.02	-0.03	-0.64	0.53
YEARS					
year 1958	16.68	7.27	0.05	2.29	0.02
year 1959	15.25	6.86	0.04	2.22	0.03
year 1960	14.01	6.45	0.04	2.17	0.03
year 1961	10.31	6.05	0.03	1.70	0.09
year 1962	7.17	5.64	0.02	1.27	0.20
year 1963	4.69	5.25	0.01	0.89	0.37
year 1964	2.20	4.85	0.01	0.45	0.65
year 1965	1.77	4.47	0.01	0.40	0.69
year 1966	0.30	4.09	0.00	0.07	0.94
year 1967	-1.70	3.72	0.00	-0.46	0.65
year 1968	-2.23	3.36	-0.01	-0.66	0.51
year 1969	-2.14	3.03	-0.01	-0.71	0.48
year 1970	-0.91	2.71	0.00	-0.34	0.74
year 1971	0.64	2.43	0.00	0.26	0.79
year 1978	-0.52	2.43	0.00	-0.21	0.83
year 1979	-0.33	2.71	0.00	-0.12	0.90
year 1980	0.23	3.03	0.00	0.08	0.94
year 1981	1.52	3.36	0.00	0.45	0.65
year 1982	4.43	3.72	0.01	1.19	0.23
year 1983	8.55	4.09	0.02	2.09	0.04
year 1984	7.92	4.47	0.02	1.77	0.08
year 1985	8.30	4.85	0.02	1.71	0.09

year 1986	11.74	5.24	0.03	2.24	0.03
year 1987	14.02	5.64	0.04	2.49	0.01
year 1988	11.79	6.04	0.03	1.95	0.05
year 1989	8.76	6.44	0.03	1.36	0.17
year 1990	5.51	6.85	0.02	0.80	0.42
year 1991	1.11	7.26	0.00	0.15	0.88
year 1992	-4.20	7.67	-0.01	-0.55	0.58
year 1993	-9.22	8.08	-0.03	-1.14	0.25
year 1994	-9.29	8.49	-0.03	-1.09	0.27
year 1995	-11.37	8.91	-0.03	-1.28	0.20
year 1996	-13.69	9.33	-0.04	-1.47	0.14
year 1997	-15.65	9.74	-0.04	-1.61	0.11
year 1998	-15.84	10.16	-0.05	-1.56	0.12
COHORTS					
cohort 08	-6.10	18.36	0.00	-0.33	0.74
cohort 09	-5.02	16.25	0.00	-0.31	0.76
cohort 10	-3.96	15.23	0.00	-0.26	0.80
cohort 11	-2.27	14.50	0.00	-0.16	0.88
cohort 12	-0.48	13.89	0.00	-0.03	0.97
cohort 13	1.27	13.34	0.00	0.10	0.92
cohort 14	3.08	12.83	0.00	0.24	0.81
cohort 15	4.77	12.34	0.01	0.39	0.70
cohort 16	6.61	11.87	0.01	0.56	0.58
cohort 17	8.64	11.41	0.01	0.76	0.45
cohort 18	10.67	10.96	0.02	0.97	0.33
cohort 19	12.55	10.52	0.02	1.19	0.23
cohort 20	14.11	10.08	0.02	1.40	0.16
cohort 21	15.27	9.64	0.03	1.58	0.11
cohort 22	16.18	9.15	0.03	1.77	0.08
cohort 23	16.79	8.69	0.03	1.93	0.05
cohort 24	17.19	8.26	0.03	2.08	0.04
cohort 25	17.47	7.86	0.04	2.22	0.03
cohort 26	17.72	7.48	0.04	2.37	0.02
cohort 27	18.02	7.11	0.04	2.53	0.01
cohort 28	18.41	6.70	0.04	2.75	0.01

cohort 29	18.81	6.30	0.04	2.99	0.00
cohort 30	19.10	5.90	0.04	3.24	0.00
cohort 31	19.12	5.50	0.04	3.48	0.00
cohort 32	18.67	5.11	0.04	3.65	0.00
cohort 33	17.60	4.73	0.04	3.73	0.00
cohort 34	16.09	4.35	0.04	3.70	0.00
cohort 35	14.11	3.99	0.04	3.54	0.00
cohort 36	11.67	3.64	0.03	3.21	0.00
cohort 37	8.97	3.31	0.02	2.71	0.01
cohort 38	6.34	3.00	0.02	2.11	0.04
cohort 39	3.99	2.73	0.01	1.46	0.14
cohort 40	2.09	2.50	0.01	0.84	0.40
cohort 41	0.77	2.33	0.00	0.33	0.74
cohort 42	0.48	2.29	0.00	0.21	0.83
cohort 43	1.32	2.44	0.00	0.54	0.59
cohort 44	2.36	2.65	0.01	0.89	0.37
cohort 45	3.42	2.91	0.01	1.18	0.24
cohort 46	4.39	3.20	0.01	1.37	0.17
cohort 47	4.63	3.54	0.01	1.31	0.19
cohort 48	4.72	3.89	0.01	1.21	0.23
cohort 49	4.76	4.25	0.01	1.12	0.26
cohort 50	4.72	4.63	0.01	1.02	0.31
cohort 51	4.61	5.02	0.01	0.92	0.36
cohort 52	4.44	5.41	0.01	0.82	0.41
cohort 53	4.23	5.80	0.01	0.73	0.47
cohort 54	3.99	6.20	0.01	0.64	0.52
cohort 55	3.72	6.61	0.01	0.56	0.57
cohort 56	3.29	6.98	0.01	0.47	0.64
cohort 57	2.69	7.36	0.01	0.37	0.72
cohort 58	1.88	7.76	0.00	0.24	0.81
cohort 59	0.88	8.18	0.00	0.11	0.91
cohort 60	-0.27	8.62	0.00	-0.03	0.98
cohort 61	-1.47	9.09	0.00	-0.16	0.87
cohort 62	-2.68	9.51	-0.01	-0.28	0.78
cohort 63	-3.83	9.93	-0.01	-0.39	0.70

cohort 64	-4.93	10.36	-0.01	-0.48	0.63
cohort 65	-5.95	10.78	-0.01	-0.55	0.58
cohort 66	-6.81	11.21	-0.01	-0.61	0.54
cohort 67	-7.33	11.64	-0.01	-0.63	0.53
cohort 68	-7.68	12.08	-0.01	-0.64	0.53
cohort 69	-7.60	12.51	-0.01	-0.61	0.54
cohort 70	-6.65	12.95	-0.01	-0.51	0.61
cohort 71	-4.63	13.40	-0.01	-0.35	0.73
cohort 72	-1.74	13.85	0.00	-0.13	0.90
cohort 73	1.96	14.31	0.00	0.14	0.89
cohort 74	6.25	14.78	0.01	0.42	0.67
cohort 75	10.63	15.26	0.01	0.70	0.49
cohort 76	14.48	15.76	0.02	0.92	0.36
cohort 77	17.26	16.29	0.02	1.06	0.29
cohort 78	19.48	16.88	0.02	1.15	0.25
cohort 79	20.92	17.57	0.02	1.19	0.23
cohort 80	21.66	18.52	0.01	1.17	0.24
cohort 81	21.60	20.45	0.01	1.06	0.29

APPENDIX 2 to CHAPTER 4

TABLE A.1.2

PARAMETER ESTIMATES OF AGE, PERIOD, AND COHORT EFFECTS ON AGE-SPECIFIC FERTILITY per 1000 WOMEN (SPLINE)				
Parameter	B	Std.Error	T	Sig.
Intercept	0.82	14.70	0.06	0.96
YEARS				
year 1958	39.58	10.75	3.68	0.00
year 1959	37.96	10.50	3.62	0.00
year 1960	36.54	10.24	3.57	0.00
year 1961	32.65	9.99	3.27	0.00
year 1962	29.35	9.75	3.01	0.00
year 1963	26.68	9.50	2.81	0.01
year 1964	24.01	9.25	2.60	0.01
year 1965	23.38	8.97	2.61	0.01
year 1966	21.72	8.71	2.50	0.01
year 1967	19.53	8.45	2.31	0.02
year 1968	18.81	8.20	2.30	0.02
year 1969	18.72	7.95	2.35	0.02
year 1970	19.78	7.72	2.56	0.01
year 1972	20.80	7.26	2.86	0.00
year 1973	20.00	7.06	2.83	0.00
year 1974	20.03	6.82	2.94	0.00
year 1975	19.62	6.59	2.98	0.00
year 1976	19.83	6.35	3.12	0.00
year 1977	19.36	6.12	3.16	0.00
year 1978	18.73	5.89	3.18	0.00
year 1979	18.74	5.66	3.31	0.00
year 1980	19.13	5.43	3.52	0.00
year 1981	20.25	5.21	3.89	0.00
year 1982	22.99	4.99	4.61	4.40

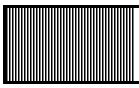
year 1983	26.95	4.77	5.65	1.96
year 1984	26.16	4.56	5.74	1.18
year 1985	26.38	4.35	6.06	1.73
year 1986	29.67	4.15	7.15	1.44
year 1987	31.80	3.96	8.04	1.99
year 1988	29.41	3.77	7.80	1.22
year 1989	26.21	3.59	7.30	5.01
year 1990	22.78	3.42	6.65	4.20
year 1991	18.19	3.27	5.56	3.18
year 1992	12.69	3.13	4.06	5.22
year 1993	7.48	3.00	2.49	0.01
year 1994	7.21	2.89	2.49	0.01
year 1995	4.94	2.80	1.76	0.08
year 1996	2.45	2.73	0.90	0.37
year 1997	0.33	2.68	0.12	0.90
year 1998	0.00	.	.	.
AGES				
age 15	-0.82	9.45	-0.09	0.93
age 16	4.50	9.20	0.49	0.62
age 17	19.48	8.95	2.18	0.03
age 18	43.43	8.69	5.00	6.64
age 19	73.93	8.44	8.75	6.07
age 20	106.85	8.20	13.04	1.19
age 21	136.51	7.95	17.17	6.91
age 22	157.63	7.70	20.47	3.44
age 23	167.22	7.46	22.42	8.65
age 24	164.78	7.21	22.85	8.83
age 25	152.27	6.97	21.85	1.02
age 26	133.98	6.73	19.91	1.82
age 27	114.61	6.49	17.67	6.28
age 28	97.49	6.25	15.60	1.57
age 29	84.34	6.01	14.03	8.48
age 30	75.28	5.78	13.03	1.29
age 31	68.96	5.55	12.43	1.14
age 32	63.55	5.32	11.95	2.31

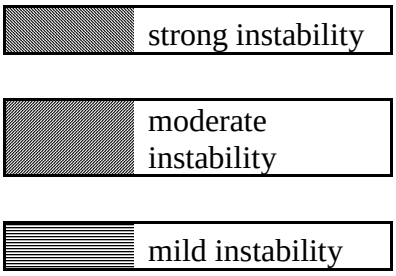
age 33	57.78	5.09	11.35	1.42
age 34	50.99	4.87	10.48	9.56
age 35	43.22	4.65	9.30	5.49
age 36	35.07	4.43	7.91	5.17
age 37	27.36	4.22	6.48	1.28
age 38	20.64	4.02	5.14	3.16
age 39	15.22	3.82	3.99	7.09
age 40	11.09	3.63	3.06	0.00
age 41	8.02	3.46	2.32	0.02
age 42	5.66	3.30	1.71	0.09
age 43	3.76	3.15	1.19	0.23
age 44	2.17	3.00	0.72	0.47
age 45	0.86	2.87	0.30	0.76
age 47	-0.47	2.22	-0.21	0.83
age 49	-0.44	2.52	-0.17	0.86
age 50	0.00	.	.	.
COHORTS				
cohort 1908	-40.46	25.46	-1.59	0.11
cohort 1909	-39.19	23.90	-1.64	0.10
cohort 1910	-37.88	23.13	-1.64	0.10
cohort 1911	-35.89	22.69	-1.58	0.11
cohort 1912	-33.79	22.38	-1.51	0.13
cohort 1913	-31.91	22.06	-1.45	0.15
cohort 1914	-30.01	21.77	-1.38	0.17
cohort 1915	-28.20	21.50	-1.31	0.19
cohort 1916	-26.19	21.23	-1.23	0.22
cohort 1917	-23.93	20.98	-1.14	0.25
cohort	-21.64	20.74	-1.04	0.30

1918				
cohort 1919	-19.47	20.51	-0.95	0.34
cohort 1920	-17.64	20.28	-0.87	0.38
cohort 1921	-16.21	20.04	-0.81	0.42
cohort 1922	-15.13	19.83	-0.76	0.45
cohort 1923	-14.35	19.61	-0.73	0.46
cohort 1924	-13.83	19.40	-0.71	0.48
cohort 1925	-13.43	19.19	-0.70	0.48
cohort 1926	-13.06	18.97	-0.69	0.49
cohort 1927	-12.59	18.77	-0.67	0.50
cohort 1928	-12.00	18.56	-0.65	0.52
cohort 1929	-11.35	18.35	-0.62	0.54
cohort 1930	-10.77	18.15	-0.59	0.55
cohort 1931	-10.47	17.95	-0.58	0.56
cohort 1932	-10.65	17.75	-0.60	0.55
cohort 1933	-11.48	17.55	-0.65	0.51
cohort 1934	-12.82	17.36	-0.74	0.46
cohort 1935	-14.67	17.16	-0.85	0.39
cohort 1936	-17.03	16.97	-1.00	0.32
cohort 1937	-19.68	16.78	-1.17	0.24
cohort	-22.26	16.59	-1.34	0.18

1938				
cohort 1939	-24.56	16.41	-1.50	0.13
cohort 1940	-26.38	16.22	-1.63	0.10
cohort 1941	-27.57	16.04	-1.72	0.09
cohort 1942	-28.07	15.86	-1.77	0.08
cohort 1943	-27.98	15.68	-1.78	0.07
cohort 1944	-27.22	15.51	-1.76	0.08
cohort 1945	-26.15	15.34	-1.71	0.09
cohort 1946	-24.84	15.17	-1.64	0.10
cohort 1947	-23.51	15.01	-1.57	0.12
cohort 1948	-22.35	14.84	-1.51	0.13
cohort 1949	-21.96	14.68	-1.50	0.14
cohort 1954	-21.45	13.87	-1.55	0.12
cohort 1959	-22.10	13.35	-1.66	0.10
cohort 1960	-22.74	13.23	-1.72	0.09
cohort 1961	-23.64	13.13	-1.80	0.07
cohort 1962	-24.70	13.02	-1.90	0.06
cohort 1963	-25.82	12.92	-2.00	0.05
cohort 1964	-26.88	12.83	-2.09	0.04
cohort 1965	-27.83	12.75	-2.18	0.03
cohort	-28.71	12.66	-2.27	0.02

1966				
cohort 1967	-29.57	12.59	-2.35	0.02
cohort 1968	-30.30	12.52	-2.42	0.02
cohort 1969	-30.75	12.46	-2.47	0.01
cohort 1970	-31.02	12.41	-2.50	0.01
cohort 1971	-30.86	12.37	-2.50	0.01
cohort 1972	-29.80	12.33	-2.42	0.02
cohort 1973	-27.66	12.31	-2.25	0.02
cohort 1974	-24.57	12.30	-2.00	0.05
cohort 1975	-20.48	12.31	-1.66	0.10
cohort 1976	-15.61	12.33	-1.27	0.21
cohort 1977	-10.65	12.38	-0.86	0.39
cohort 1978	-6.44	12.46	-0.52	0.61
cohort 1979	-3.53	12.60	-0.28	0.78
cohort 1980	-1.22	12.81	-0.09	0.92
cohort 1981	0.04	13.18	0.00	1.00
cohort 1982	0.30	13.91	0.02	0.98
cohort 1983	0.00	.	.	.


extreme instability


strong instability
moderate instability
mild instability

APPENDIX 1 to CHAPTER 5. **Reasons for Fertility Decline in Russia in the late 1980s- 1990s**

As clearly seen from the Figure 3b, fertility went into a steep decline in 1988 and remained that way into the very end of the 1990s. There are several alternative explanations to this phenomenon.

Distant Consequences of Population Policy

Let's start with the first of them. The bulk of this explanation is that policy has affected timing of births by enhancing procreation at earlier ages and narrowing intergenetic (birth) intervals, thus causing a drop in fertility later on, at the time when these births would have "normally" occur.

For the purposes of assessing a hypothesis on population policy's distant consequences having an impact on fertility decline at the early 1990s and later periods, two points are of primary interest. First, to what extent was the increase in fertility caused by policy measures? And, second, to what extent could enhanced fertility be attributable to a tempo effect (giving births at earlier ages and narrowing birth intervals), and to what degree this increase was related to change of quantum of births? Indeed, for assessing the plausibility of hypothesis on a compensatory drop in fertility at the years following the decade of policy implementation, one has to be positive, in first place, on the attribution of the most of demographic change to introduced policy measures' impact and, secondly, on the prevalence of a timing of birth change effect.

First assumption was addressed earlier in Chapter 5 (see pp. 136-138). The main premise of this notion was that though the increase of fertility in early 1980s was widely hailed as the evidence of population policy impact, there is reason to believe the trend was already on the way. The implication of this part of analysis for the assessment of a compensatory post-policy fertility decline explanation is the following one: with having reasonable support for partial fertility increase being attributable to not just a policy

effect, the scope of this explanation diminishes.

As for estimating the influence of population policy in regards to affecting quantum and tempo of fertility, there is largely a consensus among demographers about the latter having been impacted the most. Avdeev and Monnier (1995, 26-28) have estimated population policy's quantum effect at the level of 2 to 15% (for various cohorts) of the overall completed fertility. Arkhangelsky (2006, 35) assesses the "surplus" of births due to policy's measures in the amount of 0.1- 0.2 children for the cohort of women born in 1953-1957, the one with most affected quantum of fertility. Zakharov (2006, 45) provides an estimate of actual additional births (not related to just change in timing) as of 3.6% of the total number of newborns.

Of great importance for assessing the hypothesis on the compensatory drop in fertility in the years following its initial rise after introducing pronatalistic population policy, is the analysis performed by Zakharov (2006). Comparison of actual and synthetic (conditional) cohorts allowed for not only discriminating tempo and quantum effects of population policy but also helped to estimate latter's impact on order of births and other changes in demographic behavior among different cohorts.

Among major findings of this analysis are the following ones. Changing of the timing of births, that is the main impact of population policy, has included further shift of the first birth toward younger ages and narrowing of the intergenetic (birth) intervals. Policy had little if any effect on reducing the percentage of childless families, with their share in the total number of families staying at some eight percent. The probability of the second order births had significantly increased, especially at the early reproductive ages. Three was also some increase of the probability of third order births (two to three percent), especially at the ages over 30 (cohorts of 1945-1954 years of birth) and among those reaching this age before the year of 1990. There is no statistically significant increase in the births of fourth and next orders.

So, one of the major policy's impacts were enhancing number of families with two children, the trend that was already on the way. As mentioned before, most of this

"surplus" was reflected in the rise of Total Fertility Rates, and is attributable to changing of tempo of births. The differences in fertility behavior between cohorts have also manifested themselves, as demonstrated by the analysis. Cohorts of women born in the first half of the 1950s, the ones facing the decision to give births "now" or "never" at the time of population policy implementation, had the highest fertility increases. Generations that belong to second half of the 1950s years of birth and the ones born at the beginning of the 1960s (they were in their 20s at the time of policy measures introduction) had mostly changed their calendar of births. Finally, generations of the youngest women born in mid-1960s and later, are typified with having a very early start of procreation activity and a deep drop in fertility at the middle reproductive ages.

Zakharov, assessing these findings, does not deny the possibility of social and economic crisis affecting fertility drop in the 1990s. However, he equally emphasizes the impact of changing fertility tempo consequences (2006, 48-49). As one of the arguments in favor of this point of view he brings the following evidence: steep fall of fertility among women belonging to cohorts of 1960-1965 years of birth that started at 1989; slowdown of family formation for the cohorts born at the first half of the 1950s at mid-1980s and for the cohorts of 1959-1960 years of birth – at 1988. Zakharov also stresses that these slowdowns and steep declines in fertility happened before the beginning of systemic crisis at the early 1990s and views them as an evidence of changing timing of births being a major cause of the drop in TFR.

In assessing these conclusions one has to agree there are definitely several factors affecting fertility decline in Russia, consequences of changing tempo of births being one of them. As demographers stress, there is no way to discriminate these effects by providing exact statistical estimation of each factor's contribution. Acknowledging the definite role of fertility tempo changes effect on decline of birth rates, I would like to provide a qualitative assessment of the magnitude of alternative factors' impact (in the context of this very part of discussion, it is mostly the role of social and economic crisis).

First, the scope of changing tempo of births impact on further decline of fertility is limited by the fact that some of additional births are not attributable to the implementation of population policy. With its amount not exactly defined, this chunk of additional births that is not attributable to policy's impact could not be encompassed by an explanation related to consequences of changing timing of fertility. Indeed, tempo-related explanations work only for those affected by population policy.

Second, the core assumption of tempo-related explanations is that births occurred earlier due to implementation of population policy, would have otherwise taken place later, according to a "normal" pace of fertility. But it is equally plausible to assume that, being delayed in the absence of policy measures, these births would have never occurred anyway because of the start of systemic crisis in Russia in the 1990s. If this very scenario had been unfolded, fertility decline would not possibly demonstrate the same steepness but the total fertility rates would be still similarly low.

Finally, one of the arguments in favor of a tempo-related explanation of the drop of fertility is the one based on data on actual cohorts' birth rates. As mentioned before, these data demonstrate that fertility decline at different cohorts happened at the second half of the 1980s, before the start of transformational crisis in the USSR/Russia. Indeed, collapse of the state, breakdown of social and economic system, collapse of such institutions as social security and medical insurance and inflation in four digits numbers have happened in the early 1990s. However, signs of severe social and economic crisis have already manifested themselves in the late 1970s but have significantly accelerated in the late half of the 1980s.

From 1986 through 1988 Gorbachev initiated or pronounced intent to institute policies that threatened to undercut the basic provisions of a social contract in all major policy areas: employment security, wage equality, price stability and socialized services. Changes in industrial policy began to erode employment security and stability, heightening demands for productivity and the prospect of displacement. A wage reform, which increased differentials among skill grades, was also introduced. In addition,

legitimization of a limited cooperative sector began to weaken state control over consumer prices and challenged the monopolistic position of state enterprises in the consumer sector. Proposed price reforms threatened state subsidies and other necessities.

In the context of this discussion it is important to look at the wage dynamics at this period. The idea of wage reform was to diminish egalitarian distribution of income and to tie wages with quality and productivity. In many enterprises the reform produced labor productivity gains and cuts in the labor force. This did not necessarily lead to unemployment because of the creation of new jobs and possibility to enter them. Through 1987 overall increases in industrial productivity exceeded wage increases. The greater differentiation in wages and their higher correlation with productivity were introduced by the reform.

In 1988, however, the impact of reform policies on wages markedly weakened, as the workers used new political freedoms to strike against lowering their wages. Though the strikes weren't massive, the government mostly stuck to the social contract and forced managers to comply with workers' demands. Also, by late 1988 industrial managers were also motivated to increase wages because of inflation in the consumer economy. Thus the drop of wages in 1987 was followed by their increase.

The broader instability related to the deterioration of a social contract could be found in the emergence of the threat in possibility of linking wages and employment with productivity. This possibility was later reversed. Reform policy did result, however, in some erosion of labor's social contract guarantees: some workers were released from their jobs; other experienced loss of wages, and many experienced unaccustomed economic insecurity. But by early 1989 new decisions or concessions had limited the painful effects for workers: factories were allowed to reabsorb released workers, bankrupt enterprises were bailed out, wage discipline was relaxed, privatization was severely limited, and retail price reform was indefinitely delayed.

A similar retreat from the initial reforms threatening other provisions of a social contract had happened in 1988-89. According to the new law, subsidies should be

slashed to unprofitable state enterprises, with the goal of reducing subsidies to the loss-making plants by 30 percent in 1989. However, this hard decision was delayed several times and, in fact, industrial subsidies in 1989 and 1990 actually increased. Other important decision was related to the restructuring of the health sector including privatization of some medical services and creation of medical cooperatives. According to the plan, the paid services would have affected only about two percent of medical services over the next fifteen years. The legalization of cooperatives was formalized by the adoption of Law on Cooperatives on May 1988 and by the Fall, 1988 medical cooperatives were rapidly developing. The results of the cooperatives' establishment were mixed and included public complaints about abuses and corruption in that sector.

Overall, it is evident that inconsistencies with the provision of social contract elements that have accelerated in the 1980s, especially in the second half of the decade, have mostly affected the symbolic aspect of the population's everyday life. Introduction and shutting down the cooperatives, reversal of some crucial elements of a contract such as healthcare subsidies and linking wages with the increased productivity has affected mostly the stability of the existing system without bringing a substantial decline in the standard of living measured by GDP per person or the consumer basket. This trend related to the "social contract" deterioration not accompanied by a manifest economic crisis, lasted to some 1988.

Severe economic crisis, however, had exploded in the USSR in 1989 and culminated in 1990. This crisis had progressed and by 1990 it looked like the economy would disintegrate altogether. The reason for this crisis were reforms themselves that led to growing monetary imbalances, aggravated fiscal imbalances, an administrative stalemate, calamities in foreign trade, a decline in price stability (severe inflation) and shortages of the most basic goods.

So, it cannot be ruled out that to a certain extent fertility drop in the actual cohorts were caused by these very signs of social and economic instability and crisis that, according to the provided analysis, have started to aggravate before the

transformational crisis of the 1990s, at the second half of the 1970s and, to a much greater extent, at the late 1980s. Total fertility rates have showed some increase in the 1980s largely due to changing of birth calendar as a result of population policy implementation, but relatively steady decline in fertility among actual cohorts could be a more of a long-term reaction to the accelerated social and economic crisis.

Based on provided three arguments, it is possible to conclude that, along with a definite impact of the timing of births on fertility decline, there are also many reasons to believe in the presence of other factors, economic instability and crisis being one of them, that made a significant impact on fertility dynamics. Next section of this Appendix explores the role of these alternative factors brought up for the remaining explanations of lowest low fertility in Russia.

Is It Transformational Crisis or a Second Demographic Transition?

As mentioned earlier, the decline of fertility in Russia started most recently in 1988 has dramatically accelerated since 1990. Coincidence with the start of a transformational crisis provided grounds for establishing causation between two phenomena.

The transformational crisis in Russia was multifaceted. It was manifested, first of all, in the overwhelming economic disaster. The national economy went into a tailspin, with gross domestic product starting to decline at a rate of 17 percent in 1991, and at even higher rate since. In 1995 poverty rate was estimated at the level of 26 percent of the total population. Inflation reached the record rate of over 2,000 (!) percent in 1992. Most of amassed monetary savings of people was thus inflated away. Non-payments of wages became common practice even at profitable Russian enterprises. Also, in some cities in the early 1990s food coupons were introduced because of scarcity of even most basic foods.

Radical structural transformation also took place at that time. Lots of manufacturing facilities were closed and many new businesses dealing with trade,

investment and finances emerged instead. That gave a reason to sociologist Michael Burawoy for defining the developing mode of production a “merchandise capitalism”. Massive privatization of state owned property was exercised at that time. Staged collateralized auctioning allowed for allocation of huge assets in the hands of a tiny circle of new oligarchs, cronies of political elite members. Along with emerging of new classes like businessmen, racketeers and private security services, traditional well-to-do strata like physicians, teachers, research fellows and qualified workers increasingly found themselves not being in demand (and, thus, moving below the poverty line).

The transformational crisis has also carried a political dimension. In 1991 the USSR was dissolved, and that led to quite a few global implications including types of relationships with newly formed independent states, formerly USSR republics. Among problems related to this development were the ones with Russian-speaking populations in these states and the painful dissolution of “imperial consciousness”. New forms of political activity including participation in civil movements and newly formed alternative parties emerged as well.

Many ideational changes were also associated with this ongoing transformation. It was a radical break with what had been referred to as “socialist greenhouse” ideology (Sobotka, 2002, 41-46). There were no longer such things as guaranteed employment and free access to medical care. This break was even more pronounced given that leading reformers of the 1990s, E. Gaidar and A. Chubais, were guided by experience of liberal economic policies conducted by M. Thatcher and R. Reagan, with their emphasis on laissez-faire, minimal level of state support and reliance on individual. Implementation of these practices in Russia was accompanied by corrupted privatization and generated strong ideological resistance on the part of broad segments of the population. Society was marked with a huge polarization between those accepting new values (that still differed significantly from their Western counterparts) and those who did not.

Ideational changes that took place during transformation in Russia have also

included the ones directly related to demographic behavior. Those are the values reflecting permissiveness on sexual norms and behaviors including non-marital births and living in consensual unions. Acquiring these values was a sharp breakaway with Puritanism professed by official Soviet propaganda.

It is important to mention that the period of interest (from 1990 to nowadays) was not homogeneous in regard to described changes. In mid-1990s first signs of moderate economic growth showed up. The financial crisis and default of 1998 interrupted this trend for some time. However, by the turn of decade (and millennium) the trend was reversed and economic growth significantly accelerated on the wings of skyrocketing oil prices and implemented market reforms. Not only shortages of basic goods were over in most of the large cities of Russia but also new opportunities emerged as well. One of them, long-term consumer loans and mortgages that were introduced in early 2000s, became available for many citizens. New employment opportunities, especially in big cities, resulted in the creation of a tiny but steadily growing middle class.

The question that divides demographers in regard to providing an explanation of the emerged lowest low fertility in Russia is whether the major reason for the phenomena was the period effect of the transformational crisis, or it was rather long-term trends of changing fertility behavior due to the spread of new values conducive to Second Demographic Transition. With general consensus that both factors matter, the question is which of them prevails in impacting Russian fertility phenomena. Also, to what extent this factor prevails.

Let us start with analysis of the extent to which Second Demographic Transition theory is applicable to post-communist Russia. I will break this analysis into two parts. In first one, I will speculate on the applicability of the general premises of this theory including ideational changes in their relation to structural changes in society. In the second part I will examine interpretations of fertility behavior in Russia in regard to major manifestations of this behavior described by the Second Demographic Transition

theory.

The major premise of this theory, as well known, is that changes in demographic behavior are explained by huge shifts in the prevailing societal values. Van de Kaa (1996, 425) emphasizes these new values of "postmodern epoch". Among them he mentions "…the overwhelming preoccupation with self-fulfillment, personal freedom of choice, personal development and lifestyle, and emancipation". European Value Survey conducted in the Northern, Eastern and Southern parts of the continent have provided evidence of a connection between new models of demographic behavior conducive to the Second Demographic Transition theory's values: individual autonomy, weaker civil morality, world orientation, and tolerance toward minorities, self-fulfillment and other postmaterialist values (Surkyn and Lesthaeghe, 2004, 54).

Van de Kaa stresses relationship of these values' emergence with social, economic and structural conditions of societies: "Rising incomes and the economic and political security which democratic welfare states offer their populations has helped trigger a 'silent' revolution", a shift in a 'Maslovian' post-materialism direction where an individual's sexual preferences are accepted for what they are, and decisions on cohabitation, divorce, abortion, sterilization and voluntarily childlessness are largely left to the discretion of the individuals and couples involved" (1996, 425).

To what extent Russian society matches the criteria of postmaterialism that is a prerequisite for the emergence of described value shifts? In first place, postindustrial societies are typified with the prevalence of service economy sector. This is definitely not the case with Russia even nowadays, with lion share of the state profits being generated from the sales of natural resources. Russia in the 1990s was not a welfare state offering economic security to its citizens, the one Van de Kaa was referring to in regard to Second Demographic Transition. Structurally, middle class is claimed to be the "modernized part of population", thus, "type of its marital behavior shares European and American pattern" (Srednii Class, 2008, 39). According to results of the survey conducted by Independent Institute for Social Policy, the share of the middle class

constituted 20 percent of country's active population in 2000. Some estimates of the same category for 1998 is 9.4 percent and for 2006 – 22 percent. In rural areas of Russia the share of the middle class is estimated at the level of 13-15 percent (Srednii Class, 2008, 39).

What is equally important of assessing the possibility of widespread transition to new demographic behavior in Russia is the level of polarization in society. According to data published by Roskomstat (Russian Committee for Statistics), in 2007 incomes of top 10 percent of population have sixteen times exceeded the ones of bottom 10 percent. Overall, Russian social structure resembles the one Europe had forty-fifty years ago (Srednii Class, 2008, p. 39). At this very time, a period of 1955-1965, for the most European countries Second Demographic Transition had yet to come.

This is not to be said that economic and structural conditions in Russia rule out the fact of Second Demographic Transition took a start in Russia. Rather, the point is that given these conditions, there is, most likely, a very tiny segment of population in nowadays Russia (and even more so in the 1990s) that fully acquired values conducive to the ones described by the Second Demographic Transition theory. This very segment is mostly concentrated in big cities, growing regional centers and oil rich cities. It is likely that with increase of cities' development and overall modernization of the country, this chunk of population will increase.

I would go beyond purely structural analysis given the fact that the values could to some degree trickle down to lower strata, outside of statistically defined boundaries of middle class. I'd like to speculate on the very values conducive to Second Demographic Transition: to what extent they are shared by the "demographically advanced" group, Russian middle class? As seen from the list of these values cited above, it is quite a heterogeneous group. The question of which of these values were internalized in Russia, and to what extent, merits special research. In the absence of that, I'll try just speculating on the topic.

Tolerance toward minorities is definitely not a value in great supply in Russia.

Killings of foreign students with different color or just from different ethnic groups by skinheads became a common practice in quite a few cities of Russia, St. Petersburg being first among them. Sobotka cites characterization for all the post-Soviet states that include existence of such traits as "…xenophobia and authoritative nationalism" (2002, p. 50).

The idea of such values as self-fulfillment, freedom of choice, personal development and individualistic lifestyles being acquired in full by the broad segments of Russian population has been qualified by a prominent demographer as being "out of touch with reality" (Klupt, 2008, p. 323). Indeed, unfair allocation of the most attractive assets in the hands of elite's inner circle, widespread corruption, authoritarian type of modernization undertaken by President B. Yeltsin, as well as domination of criminals in economic structures in the 1990s don't contribute to self-actualization and enjoyment of freedom. However, there are certain shifts in the direction of spreading of those values. Plurality of the forms of ownership provided certain choices for individuals. Ability to earn more money created stimulus for hard work and education, those accumulated wealth started, in accordance to Maslow, thinking of higher forms of human existence, such as self- actualization.

One value related to freedom and self-expression, however, has not only emerged but became dominant. That is consumerism. Actually, drive for consumerism has appeared before
1990. In discussion, provided on that issue, Sobotka (2002, 57) cites a point of view linking collapse of the Communist regimes with their inability to satisfy consumer demands. With gradual rise of supply of goods in the second half of 1990s not only demand for them was matched but the whole culture of consumerism has emerged and expanded in Russia.

Summarizing this part of discussion, one can conclude that not only economic and structural conditions of Russia have limited the advance and scope of Second Demographic Transition but the very uneven internalization of various values

conducive to the initiation of new demographic behavior, most likely, have made a mark on its advance.

Let us turn to the analysis of Second Demographic Transition theory's manifestations of demographic behavior in Russia. Following features of such behavior are defined: increase in the numbers of consensual unions; increase in proportions of non-marital childbearing with an accompanying increase in the mean age at childbearing outside marriage; decline of induced abortions and increase in use of modern contraception; change in the position and shape of distribution of birth by age including shift in the share of teenage fertility; increase of the mean age of legal marriage, mean age at giving first birth, and mean age of maternity.

Let us start with analysis of the first two features. Russia in the 1990s has demonstrated relatively high and still growing rate of cohabitation. Higher prevalence of cohabitation of the women aged 20-24 and 25-29 in comparison with many other Eastern European countries, with tendency of increase, is presented by Sobotka (2002, p. 33). Also, a definite change towards increased non-marital childbearing coupled with higher prevalence of cohabitation is clearly the trend for three countries, Russia being one of them.

These trends could well speak in support of SDT start in Russia. However, both spreading of cohabitation unions and increase in the share of non-marital births could equally reflect severe economic and social conditions. Klupt (2008, 320) emphasizes the movement of significant share of incomes into economic "shady" areas that, along with weakening of legal system, have led to diminishing of the role of marriage institution as the one securing provision of material support from the former husband for rearing a child. The author also stresses that despite commonalities in changes of sexual relationships between Russia and Western Europe, their impact on fertility differed. While in most Western European countries non-marital fertility is almost equaled to fertility in legal marriages (due to favorable economic conditions for rearing a child by a lone mother), the spread of cohabitation unions in Russia has

resulted in overall fertility decline. So, increase in number of couples living in cohabitation unions and the number of non-marital births, most likely, reflect the impact of two major factors: first, spreading of new sexual norms conducive to SDT and, second, devaluation of the institution of marriage due to transformational crisis.

As for the third manifestation of Second Demographic Transition, there is strong evidence that Russia has definitely demonstrated a decline in induced abortions and relatively high rate of using modern contraception (mostly IUD). With TIAR level of 2.08 in 1999, Russia still has the high rate of induced abortions, perhaps highest among countries of Central and Eastern Europe including former Soviet republics (with no data available for Ukraine). But consistent trend of gradual decline in induced abortions since second half of the 1980s is evident: 3.66 percent in 1985, 3.31 percent in 1989, 3.05 percent in 1990, 2.6 percent in1995, 2.40 percent in 1997, 2.2 percent in 1998 and 2, 08 percent in 1999.

Induced abortions decline is a more unambiguous indicator of Second Demographic Transition that increase of those living in consensual unions. The latter could point out for both the start of demographic transition and for the impact of transformational crisis as well, while decline in induced abortions and increase in the use of modern contraception clearly speaks of the signs of long-term processes like Second Demographic Transition expansion.

Postponement of marriages and parenthood is viewed as the main feature of the Second Demographic Transition (Lesthaege and Moors, 2000, p. 124). The importance of timing change in fertility is emphasized, in particular, by Sobotka (2003). He notes that postponement of childbearing depresses the TFR to a lower level than the one it would have reached in the absence of timing changes. So, for the explanation of the extent to which TFR decline is attributable to postponement of births (the main feature of the Second Demographic Transition) is essential for a given discussion.

Russia has demonstrated a trend of increasing of the ages of both marriage and parenthood, as for the first order births, as well the mean one. It was not as pronounced,

though, like in most countries of Central and Eastern Europe. And, as with the share of those living in cohabitation unions, this indicator could be interpreted both as a sign of the SDT advance, as well as a manifestation of economic crisis. Klupt, for instance, mentioned possibility of this postponement being partially attributable to the "behavior of young women from depressed regions that performed several abortions before the birth of a first child, and have postponed those latter due to lack of permanent job and reliable partners" (Klupt 2008, p. 322).

However, there is an indicator designed to split "real" reduction in fertility level (quantum) from the one caused by *timing* effects: it is adjusted total fertility rate introduced by Bongaarts-Feeney. According to it, there is a clear division in the major "contributors" to low TFR across Central and Eastern European countries. While in Hungary and Czech Republic the decline of TFR was mainly attributable to the timing effects (the *tempo* component) and in Baltic States, Poland and Slovakia the impact of calendar of births was also quite substantial, in Bulgaria, Romania and Russia the tempo effect in TFR was very modest: correspondingly 30, 20 and 16 percent. So, for Russia quantum component of lowest low fertility was the prevalent one, and that speaks in favor of a limited effect of the Second Demographic Transition.

What seems very insightful for assessing degree of Russian fertility trends' universality is the "two layer model" proposed by Sobotka (2002, 2003). According to it, the split between Central and Eastern European countries in regard to described above differences in types of demographic behavior and patterns reflect the pace of implemented reforms. Countries that have underwent smooth transition to market economy (Czech Republic, Slovenia, Poland and Hungary) demonstrate greater signs of acquiring fertility behavior conducive to Second Demographic Transition (which is reflected in prevailing influence of birth postponement on the decline of TFR). Second category experienced economic and societal near-collapse in the course of transformation and thus demonstrate emphasis on survival values. Thus major factor in TFR decline for these countries was the *quantum effect* that is the actual change in the

number of births throughout the women' reproductive period, not related to timing effects of postponing births, that is the *tempo effect*. So, the impact of Second Demographic Transition (for which postponing births is one of the major indications) was not so pronounced for the countries of second category that includes Bulgaria, Romania and most post-Soviet states, including Russia.

Summarizing this discussion, it could be concluded that there are clear indications of the

SDT indeed started and generated an impact on fertility in Russia. However, at the period from 1990 to nowadays its impact seems to be relatively insignificant. Here are the major arguments in favor of this point of view based on provided discussion:

First, level of country's modernization and the corresponding social structure typified with tiny portion of "demographically advanced" middle class, assume significant limitations for fertility behavior conducive to Second Demographic Transition;

Second, the societal values that generate Second Demographic Transition were not evenly acquired: some of these important values were shared only by very small segments of population;

Finally, various manifestations of fertility behaviors conducive to the ones described by Second Demographic Transition theory, differed in degree of acceptance. While some of them (decline in the induced abortions, increase in the use of modern contraception) demonstrated significant dynamics, others, like the most important one, delaying of first and other births, were not as pronounced. Most of TFR decline was attributable to *quantum* rather than *tempo* effect.

There are several other factors that also favor the possibility of a strong impact of transformational crisis on lowest low fertility, also suggest this explanation. One of them being the fact that Second Demographic Transition that took place in most Western European countries had not caused such prolonged and steep decline of fertility (except for Germany, Italy and Spain for the special reasons related to correspondingly

denazification, traditions of familialism and a negative attitude toward living in consensual unions). However, for the countries that underwent transformational crisis, there are striking similarities in steepness and duration of fertility decline.

Other indirect evidence of demographic behavior's sensitivity to economic situation is the drop in fertility in Russia in 1999, right after financial default of 1998. Shortly after the start of financial and economic recovery TFR gradually started to climb. Also, evidence in favor of significance of economic crisis impact on fertility is supported by the data of sociological survey conducted by VTsIOM (the Russian Center for Public Opinion Research). According to it, in the first half of the 1990s people cited the decline of living standards, unemployment and other factors that are directly tied to the economic crisis among major reasons limiting the desired number of children in a family (Kashperov, 2004, p. 61).

The undertaken discussion allows for defining economic crisis and instability to be the primary reason for a steep fertility decline in the USSR/Russia starting late 1980s.